



**RMT  
Asphalt Distributor**

**OPERATION, MAINTENANCE & PARTS  
Manual Part No. 38847**

**Begins With Serial No. 38037**

**Revised 04-01-03**

**NOTE: It is the responsibility of the customer or user's management to train, educate and supervise the employee in the proper operation and maintenance of this equipment.**

**ROSCO - A LeeBoy Company**

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# SECTION I

## PREFACE

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# RMT DISTRIBUTOR

## LIMITED WARRANTY POLICY AND PROCEDURES

### A. WARRANTY

1. If a defect in material or workmanship is found and the authorized Dealer is notified during the warranty period, ROSCO will repair or replace any part or component of the unit or part that fails to conform to the warranty during the warranty period.
2. The warranty will begin upon the completion of the warranty form by the initial customer and will expire after twelve (12) months have passed. The Warranty Card must be filled out within ten (10) days of delivery of the unit.
3. Engines and truck chassis are warranted by their manufacturers and may have warranty coverage that differs from that of ROSCO.
4. Replacement parts furnished by ROSCO are covered for the remainder of the warranty period applicable to the unit or component in which such parts are installed.
5. ROSCO has the right to repair any component or part before replacing it with a new part.
6. All new replacement parts purchased by a ROSCO dealer will carry a six (6) month warranty. Remanufactured parts purchased by a ROSCO dealer will carry a ninety (90) day warranty.

### B. LIMITATIONS

ROSCO has no obligation under this warranty for:

1. Any defects caused by misuse, misapplication, negligence, accident or failure to maintain or use in accordance with the most current operating instructions.
2. Unauthorized alterations.
3. Defects or failures caused by any replacement parts or attachments not manufactured by or approved by ROSCO.
4. Failure to conduct normal maintenance and operating service, including without limitation, providing lubricants, coolant, fuel, tune-ups, inspections or adjustments.
5. Unreasonable delay, as established by ROSCO, in making the applicable units or parts available upon notification of a service notice ordered by ROSCO.
6. The warranty responsibility on all engines and/or truck chassis rests with the respective manufacturer.
7. ROSCO may have support agreements with some engine and/or truck chassis manufacturers for warranty and parts support.

# RMT DISTRIBUTOR

## LIMITED WARRANTY POLICY AND PROCEDURES

### C. ITEMS NOT COVERED

ROSCO is not responsible for the following:

1. Charges for travel time, mileage or overtime.
2. Charges related to transporting the product to and from the place at which warranty work is performed.
3. Freight charges related to transporting repair parts to the place at which warranty work is performed.
4. All used units or used parts of any kind.
5. Repairs made necessary by normal wear and tear or brought about by abuse or lack of maintenance of the equipment, except for premature failures.
6. Attachments not manufactured or installed by ROSCO.
7. Liability for incidental or consequential damages of any type, including, but not limited to lost profits or expenses of acquiring replacement equipment.
8. Miscellaneous charges.

### D. OTHER WARRANTIES

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESSED, STATUTORY AND IMPLIED WARRANTIES APPLICABLE TO UNITS, ENGINES OR PARTS, WITHOUT LIMITATION, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE. IN NO EVENT, WHETHER AS A RESULT OF BREACH OF CONTRACT OR WARRANTY, OR ALLEGED NEGLIGENCE OR LIABILITY WITHOUT FAULT, SHALL ROSCO BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOSS OF PROFIT OR REVENUE, COST OF CAPITAL, COST OF SUBSTITUTED EQUIPMENT, FACILITIES OR SERVICES, DOWN TIME COSTS, LABOR COSTS OR CLAIMS OF CUSTOMERS, PURCHASERS OR LESSEES FOR SUCH DAMAGES.

## INTRODUCTION

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The ROSCO RMT is used for the transportation and distribution of asphalt based products for road maintenance and repair. The machine can spray asphalt emulsions, asphalt cements and cut backs. ROSCO Manufacturing strongly recommends the use of asphalt emulsions. Water based emulsions reduce the risk of fire and explosion. The RMT *should not be used* to distribute water, calcium chloride or other deicing liquids. These materials can corrode the pump and valves and dangerously contaminate the tank. If these materials are used in an RMT, the warranty is voided on those components affected by the material.

The technical information found in this manual was correct at the time that it was approved for publication. However, due to a continuous program of research and development, some procedures, specifications and parts may be altered in a constant effort to update and improve our products. ROSCO Manufacturing Company reserves the right to make design or specification changes without prior notification or to make any other improvements without incurring obligations to add them to any machine in existence. Please contact your local ROSCO Authorized Dealer if you require further assistance.

This manual has been compiled to assist the owner/operator with the correct operation and routine maintenance procedures needed for the safe and efficient use of the ROSCO RMT Asphalt Distributor. In order to maximize the performance and efficiency of the RMT it is **VERY IMPORTANT** that the owner/operator and maintenance personnel read this manual thoroughly before operating or servicing the distributor. You must have basic knowledge about the handling of asphalt products and should be trained and licensed per state requirements before operating this equipment. Always keep this manual in a convenient place for instant reference and never attempt to make repairs or adjustments that you do not fully understand. If you require additional information or service, contact your Authorized ROSCO Dealer.

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# SPECIFICATIONS - RMT ASPHALT DISTRIBUTOR

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**ENGINE OPTIONS**

Kohler liquid cooled gasoline, LPG or HATZ air cooled diesel engine. 4 cycle, 2 cylinder.

**TANKTYPE**

Elliptical shape. Full-cross section 10 gauge (3.4mm) surge plates with staggered openings. Meets all applicable Federal tank regulations for asphalt distributors.

**TANK CAPACITY**

1000 U.S. Gallons (3,785 L) with overage for expansion.

**TANK MATERIAL**

Steel, 10 gauge (3.4mm) shell, 7 gauge (4.5mm) reinforced and flanged heads, all seams electrically welded inside and out.

**INSULATION AND JACKET**

2 inch (51mm) thickness with 18 gauge (1.2mm) weatherproof aluminum jacket.

**TOP OPENING**

22 inch (558mm) diameter with weather tight and safety relieving cover. Inside splash guards, 3 inch (76mm) diameter overflow pipe, steel measuring stick, basket type strainer.

**SUMP**

8 inch (203mm) diameter at rear of tank with cleanout plug. Suction line from pump includes tank cutoff valve.

**HEATING FLUES**

Double flue with 8 inch (203mm) inside diameter tubing with square return bend configuration.

**EXHAUST STACK**

14 gauge (1.9mm) stainless steel at rear with hood.

**THERMOMETER**

Armored pencil inspectors type 20 degree to 500 degree on side of tank in pipe well. 4 inch (101mm) dial thermometer.

**BURNERS**

Liquid withdrawal LPG burner(s) with pressure regulators and necessary LP connections to frame mount 52 gallon tank. Standard temperature control included. Optional LPG electronic controls (ignition and outfire). Optional diesel fired burners with standard electronic ignition.

**CONTENTS GAUGE**

Float type, continuous reading in 50 gallon (189 L) increments. Front and rear head mounted.

**FUNCTION FROM CAB DISTRIBUTOR CONTROLS**

Control provides accurate application rate regardless of changes in speed and spraybar length. Display includes selectable readouts for pump GPM. Control panel includes controls for spraybar on/off, tank circulate, spray, handspray and cleanout functions.

**ASPHALT PUMP**

Viking U32, 3 inch (76mm) 150 GPM/567 LPM capacity positive displacement, rotary gear pump. Located at rear of unit with suction piping to tank sump.

# SPECIFICATIONS - RMT ASPHALT DISTRIBUTOR

## ASPHALT PUMP DRIVE

Hydrostatic, hydraulic pump, engine driven with fixed displacement hydraulic motor. Control in cab to adjust speed of asphalt pump with additional rear control. 11 gallon (41 L) hydraulic reservoir.

## SPRAYBAR

14 foot (4.3m) full circulating spraybar, consisting of an 8 foot (2.4m) center section and two 3 foot (0.9m) folding sections, 2 compartment sections, 4 inch (101mm) nozzle spacing with individual quick disconnect internal valve for each nozzle. Manual lift of spraybar.

## NOZZLES

Standard brass V-Jet, 4 inch (101mm) centers.

## CAB CONTROL

Controls in cab for spraybar on/off and auto valve functions.

## FINISH

Enamel paint with aluminum jacket. Black paint standard.

## MISCELLANEOUS STANDARD EQUIPMENT

Transfer valve with quick coupler, backup alarm. Single nozzle handspray gun with 25 foot (7.6m) hose.

## OPTIONAL EQUIPMENT

Rubber or steel loading hose, portable LP torch, washdown system.

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## SERIAL NUMBER PLATE LOCATION

Always give your dealer the Serial Number of your ROSCO Hydrostatic Distributor when ordering parts or when requesting service or other information.

The Serial Number Plate is located on the right side of the Distributor, at the front of the towing hitch (See Figure 1). Please write the number in the space provided on the page for easy reference.

MODEL: \_\_\_\_\_

SERIAL NUMBER: \_\_\_\_\_

PRODUCTION YEAR: \_\_\_\_\_

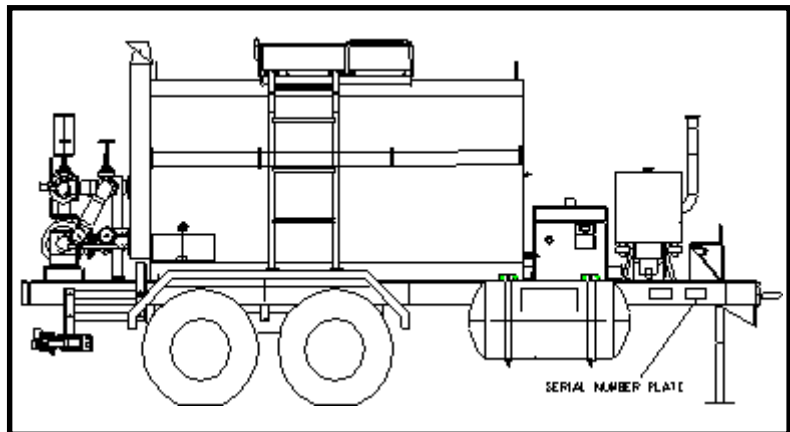


FIGURE 1

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## SAFETY

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### Safety Alert Symbols

This Safety Alert symbol means  
**ATTENTION! BECOME ALERT!**  
**YOUR SAFETY IS INVOLVED!**



The Safety Alert Symbol identifies important safety messages written on the RMT decals, as well as, in this manual. When you see this symbol, be alert to possible danger that could result in serious injury or death.

Why is SAFETY important to you?

#### Three Big Reasons:

- \* Accidents Disable and Kill
- \* Accidents Cost
- \* Accidents can be Avoided

### Signal Words

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Note the use of the key signal words **DANGER**, **WARNING**, and **CAUTION** with the safety message. The appropriate signal word for each message has been selected using the following guidelines:

<b>DANGER</b>	An immediate and specific hazard which <b>WILL</b> result in severe personal injury or death if the proper precautions are not taken.
<b>WARNING</b>	A specific hazard or unsafe practice which <b>COULD</b> result in severe personal injury or death if proper precautions are not taken.
<b>CAUTION</b>	Unsafe practices which <b>COULD</b> result in personal injury if proper precautions are not taken or as a reminder of good safety practices.

### Equipment Damage Symbol

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Throughout this manual, whenever you see this "Broken Bolt" symbol, it means:



#### ATTENTION

Equipment on the machine could be damaged through improper performance of an operation, maintenance or repair procedure.

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# OPERATOR QUALIFICATION AND CONDUCT

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## ASPHALT DISTRIBUTOR OPERATORS

Operation shall be limited to personnel with the following minimum qualifications:

1. Designated persons. This means the operator is selected or assigned by the employer or the employer's representative as being qualified to operate the Asphalt Distributor.
2. Trainees under the direct supervision of a designated person.
3. Maintenance and test personnel (when it is necessary in the performance of their duties).

No one other than the personnel specified above shall operate the asphalt distributor with the exception of persons such as service technicians, supervisors and those authorized by supervisors, whose duties require them to do so and then only in the performance of their duties and with the knowledge of the operator or other appointed person.

## QUALIFICATIONS FOR OPERATORS

1. Operators shall be required by the employer to pass a practical operating examination. All operators must meet state licensing requirements including but not limited to a (CDL) commercial drivers license and hazardous material handling license.
2. Operators and operator trainees shall meet the following physical qualifications:
  - A. Vision of at least 20/30 Snellen in one eye and 20/50 in the other, with or without corrective lenses.
  - B. Ability to distinguish colors, regardless of position, if color differentiation is required for operation.
  - C. Adequate hearing, with or without hearing aid, for the specific operation.

3. Evidence of physical defects or emotional instability which could render a hazard to the operator or others, or which in the opinion of the examiner could interfere with the operator's performance, may be sufficient cause for disqualification. In such cases, specialized clinical or medical judgments and tests may be required.
4. Evidence that an operator is subject to seizures or loss of physical control shall be sufficient reason for disqualification. Specialized medical tests may be required to determine these conditions.
5. Operators and operator trainees should have normal depth perception, field of vision, reaction time, manual dexterity, coordination and no tendencies to dizziness or similar characteristics.
6. In addition to the above listed requirements, the operator shall:
  - A. Demonstrate the ability to comprehend and interpret all labels, operator manuals, safety codes and other information pertinent to correct Asphalt Distributor operation.
  - B. Possess knowledge of emergency procedures and the ability to implement them.
  - C. Demonstrate to the employer the ability to operate the specific type of equipment.
  - D. Be familiar with applicable safety regulations.
  - E. Understand responsibility for maintenance requirements of the Asphalt Distributor.
  - F. Be thoroughly familiar with the Asphalt Distributor and its control functions.
  - G. Understand the operating procedures as outlined by the manufacturer.

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# OPERATOR QUALIFICATION AND CONDUCT

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## CONDUCT OF OPERATORS

**YOU** are responsible for the safe operation and maintenance of your ROSCO RMT. You must ensure that you and anyone else who is going to operate, maintain or work around the machine be familiar with the operating and maintenance procedures and all related safety information contained in this manual.

1. The operator shall not engage in any practice which will divert his/her attention while actually engaged in operating the Asphalt Distributor.
2. Each operator shall be responsible for those operations under the operator's direct control. Whenever there is any doubt as to safety, the operator shall consult with the supervisor.
3. The operator should not leave the Asphalt Distributor when the asphalt material is being loaded, unloaded, transferred or heated by the distributor burner system.
4. If there is a warning sign on a switch, engine control or distributor component, the operator shall not close the switch, start the engine or use the component until the warning sign has been removed or acknowledged by the appointed person.
5. Before operating the Asphalt Distributor, the operator shall see that all controls are in the **OFF** or **NEUTRAL** position and that all personnel are in the clear.
6. In accordance with OSHA regulations 1928.51 and 1928.52, operating instructions must be provided initially to operators/employees before allowing them to operate the RMT and should be reviewed annually thereafter.

The most **IMPORTANT** safety device on this equipment is a well trained and safe operator. It is his/her responsibility to read and understand all safety and operating instructions in this manual. A person who has not read and understood all operating and safety instructions is not qualified to operate the RMT. An untrained operator exposes himself/herself and bystanders to possible serious injury or death. **All accidents can be avoided!**



**WARNING: DO NOT** modify the RMT in any way. Unauthorized modification may impair function and/or safety causing severe injury or death. It may also affect the working life of the equipment.

**ROSCO / A LeeBoy Company assumes NO LIABILITY for accident or injury incurred through the improper use of this equipment.**

# SAFETY

## GENERAL SAFETY PRECAUTIONS

1. Read and fully understand the operator's manual and the safety decals on the machine before trying to operate or service this equipment.



2. Have a first-aid kit available and **know how to use it.**

3. Keep a "charged" fire extinguisher within reach whenever you work in an area where fire may occur.



Have the correct type of extinguisher for your situation and **know how to use it:**

**Type A:** Wood, paper, textile and rubbish

**Type B:** Flammable liquids

**Type C:** Electrical equipment

4. Wear safe work clothing. Do not wear clothing that is loose fitting or in poor repair when working on machinery. Do not wear rings or wrist watches when working on machinery. They can catch on moving parts and pull you into the machinery, causing serious injury. Wear sturdy, rough-soled work shoes, safety glasses and any other protective gear that is warranted by the work environment.



5. Keep work area organized and clean. Wipe up oil spills of any kind. Keep tools and parts off floor. Eliminate the possibility of a fall which could result in serious injury.

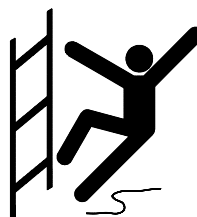


6. Be sure to reinstall safety devices, guards or shields after adjusting and/or servicing the machine.

7. After servicing, be sure that all tools, parts, or servicing equipment are removed from the vehicle or engine.

8. **Do not hurry.** Use recommended hand holds and steps with at least three points of support when getting on and off the RMT. Keep steps, floor, hand

holds and controls clean and free from grease. Face the machine when climbing up and down and never jump off while the machine is in motion. Falls from the machine can cause serious injury.



9. Do not permit riders on the RMT. Death or serious injury can occur when riders fall off or under the machine while it is in motion.

10. **Do not go into the tank!** Death can occur due to lack of oxygen, breathing poisonous fumes or explosion. **Keep others out!**



11. Do not smoke around the machine. Fuel, emulsion and the fumes from both can explode when exposed to flame or heat from smoking or other sources.

12. Always wear your seat belt when travelling.

13. Keep the unit clean.

## PRE-OPERATING

1. Always follow the pre-operation instructions in the **Operations** section of this manual before operating the machine. Be sure all controls and gauges are operating properly before starting a job. **Do not** operate the machine if any of the warning buzzers/lights are **ON**. If any malfunctions are found prior to or during operation, **shut down the machine and report the problem to a supervisor.**

2. Keep all hydraulic lines, fittings and couplers tight and free of leaks. Leaking fittings are a fire hazard.



3. Hydraulic fluid under pressure can pierce skin, causing serious injury or toxic reaction. **Do not feel for hydraulic leaks with your hands.**

# SAFETY

4. The operator is responsible for the work area. Clear the area of people **before** starting or operating the unit. Death or serious injury can occur to bystanders from being crushed under a moving machine or being hit by debris.

5. **Know and understand** the job site traffic flow patterns and obey flagmen, road signs and signals.

6. When transporting the machine, **know and use** all required signal devices. Use tail lights, slow moving vehicle signs and warning beacons when on public roads. Provide an escort when necessary.

7. **Do not** allow riders on the machine when transporting. Death or serious injury can occur if riders fall off or under the machine while it is in motion.

8. Clean reflectors and lights before transporting to help avoid collisions with other traffic.

## STARTING AND STOPPING

1. Walk around the machine and **be sure** to warn all personnel in the area before starting the machine. **Be sure the area is clear before starting.** Death or serious injury can occur to bystanders from being crushed under a moving machine or being hit by material.

2. **Do not** operate the engine in an enclosed area without adequate ventilation. Exhaust gases contain carbon monoxide, an odorless and deadly poison.

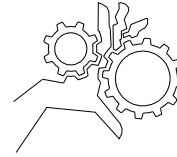


3. **Always** park the machine on level ground whenever possible. Apply the parking brake. On grades, park the RMT with the wheels securely blocked.

4. Stopping distances must be anticipated for **all** conditions. If stopping on a grade, the distance needed to come to a stop will be longer. Familiarize yourself with these variables so you can anticipate when a longer stopping distance is required.

## OPERATING

1. **Know and use** the hand signals required for each job and know who has the responsibility for signaling.



2. Keep hands, feet, hair and clothing away from moving parts. Death or serious injury can occur from entanglement in moving parts.

3. Watch for bystanders and **never** allow anyone to reach into the machine while it is operating.

4. **Do not** go under the vehicle when the engine is running. Death or serious injury can occur if one becomes crushed by or entangled in moving parts.

5. After servicing, be sure that **all** tools and parts or servicing equipment are removed from the vehicle or engine.

6. **Be sure** to reinstall safety devices, guards or shields after adjusting and/or servicing the machine. Death or serious injury can occur from entanglement in moving parts.

## MAINTENANCE

1. **Do not attempt repairs unless trained.** Refer to manuals and experienced repair personnel for help.

2. Follow **all** operating, maintenance and safety information in the manual.

3. Support the machine with blocks or safety stands when changing tires or working beneath it. Death or serious injury can result from the machine falling off a jack and crushing you.

4. Place **all** controls in neutral, stop engine, remove ignition key and wait for **all** moving parts to stop **before** servicing, adjusting or repairing. Death or serious injury can occur from entanglement in moving parts.

# SAFETY



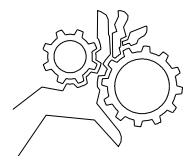
5. Follow good shop practices: **Keep** service area clean and dry. **Be sure** electrical outlets and tools are properly grounded. **Use** adequate light for the job at hand.

6. Make sure **all** guards are in place and properly secured after maintenance work is completed. Serious injury can occur from being caught in unguarded moving parts.

7. **Never** wear baggy or frayed clothing when working around or on any of the drive system components. Loose garments can become entangled in moving parts, pulling the person into the machine, causing serious injury or death.

8. **Before** applying pressure to a hydraulic system, **be sure** all lines, fittings and couplers are tight and in good condition. Leaking fittings are a fire hazard. Hydraulic fluid under pressure can pierce the skin which can result in serious injury or toxic reaction.

9. Wear protective glasses and other required safety equipment when servicing or repairing the Road Sweeper.



10. Keep hands, feet, hair and clothing away from moving parts. Death or serious injury can occur from entanglement in moving parts.

11. Clear the area of bystanders when carrying out any maintenance, repairs or adjustments.

12. **Do not** service the machine while it is in motion or while the engine is running. If the engine must be running to service a component, apply parking brake, block wheels and use **extreme caution**.

13. Do not make repairs on pressurized components, fluid, gas or machinery until the pressure has been properly released. Use **extreme caution** when removing radiator caps, drain plug, grease fitting or pressure taps. Park the machine

and let it cool before opening a pressurized compartment.

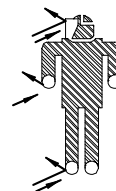
14. When inflating tires, use a self attaching inflation chuck with a remote shut-off and **stand clear** of the tire. A tire can explode with great force.

15. **Do not** operate the unit with loose wheels or rims. Check wheel nuts periodically for tightness. Refer to the Bolt Torque chart at the end of the **Maintenance** section of this manual.

16. Keep brakes in good operating condition.

## HOT MATERIAL PRECAUTIONS

1. Wear protective gear for face, hands, feet and body when working with hot material.



2. Allow machine to cool before repairing or servicing working components.

3. When hot asphalt touches skin, flush area immediately with cold water. Do not apply ice directly to affected area. **Do not attempt to remove asphalt cement with products containing solvents or ammonia.** Natural separation will occur in about 48 - 72 hours. **Get medical attention as soon as possible.**

## FIRE AND EXPLOSION PRECAUTIONS

1. Keep machine and asphalt material away from sparks, incandescent material and open flames. Fumes are flammable and can explode.



Extra care must be taken when cutback asphalts are used. They have a much lower flash point thereby posing a greater risk of explosion.

2. Do not fill the RMT when there is water in the bottom of the tank. The hot material will turn the water into steam and can cause an explosion.



## SAFETY

3. Do not mix different asphalt materials in tank. Clean tank and the circulating system before adding a foreign substance. Refer to the Clean Out procedure in the **Operation** section of this manual. Due to the tremendous variety of asphalt products the tank cleaning procedure will vary. Contact the supplier of the asphalt product for the correct procedure for cleaning the tank.



4. Purge cleanout solvent from spraybar before circulating asphalt through pumps or booms. Hot asphalt can vaporize fluid and cause an explosion.

5. Do not smoke around the machine. Fuel, emulsion and the fumes from both can explode when exposed to flame or heat from smoking or other sources.



### BURNER SAFETY PRECAUTIONS

1. Burner equipment must not be operated while the vehicle is being loaded or is in transit.

2. Burner tubes must be covered by at least 8 inches of asphalt before burners are ignited. (See Section 3, Burner Operation, for information on how to determine flue tube coverage.)



3. Do not exceed asphalt flash temperature. Hot fumes can explode. (See Material Information in this Section.)

4. Stay away from burner and stack when heating material in tank.

5. Keep others away from machine when operating burners.

6. Follow burner operator instructions.

7. With propane fired burners, use a liquid draw system at 10-20 PSI.

8. Use a torch to light LPG burners rather than a match or cigarette lighter.

### HYDRAULIC SYSTEMS PRECAUTIONS

1. Make sure that all components are in good working condition and are clean.

2. Replace any worn, cut, abraded, flattened or crimped hoses and metal lines.

3. Do not make repairs using tape, clamps or cements. The hydraulic system operates under extremely high pressure. Such repairs will fail suddenly and create a hazardous condition.

4. Wear proper hand and eye protection when searching for a high pressure leak. Use a piece of wood or cardboard as a back stop instead of hands to isolate and identify leaks. **Do not use your hands.** Relieve pressure on the system before doing any repairs or disconnecting lines, hoses or valves. Before reapplying pressure to a hydraulic system, make sure all lines, fittings and couplers are tight and in good repair.



5. Pressurized hydraulic fluid or oil has sufficient force to penetrate the skin. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin. If injured by a high pressure stream of hydraulic fluid, seek medical attention **immediately.**



### REFUELING PRECAUTIONS

1. Handle fuel with care. It is highly flammable. Do not overfill fuel tank. Expansion and spillage create a fire hazard.



2. Clean up spilled fuel before restarting engine. A spark could ignite the spillage.



3. Do not smoke while refueling the machine. Do not refuel the machine near open flame or sparks. Do not refuel while the engine is running. Do not use fuel

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## SAFETY

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for cleaning purposes. Death or serious injury can occur from explosion or fire.

4. Fill fuel tank outdoors to reduce the chance of fumes accumulating and causing a fire or explosion. Keep the hose nozzle or funnel inside the tank while filling to avoid spilling fuel.



5. Prevent fires by keeping machine clean of accumulated grease and debris.

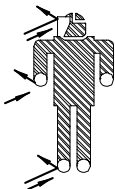
6. Do not fill tank to capacity. Allow room for expansion to reduce the risk of fuel expanding and spilling from the tank.

7. Tighten the fuel tank cap securely. If the cap is lost, replace it only with the original manufacturer's approved cap. A non-approved cap without proper venting may result in pressurization of the tank.

8. Use the correct fuel grade for the operating season. Refer to the Hydraulic Fluid chart in the **Maintenance** section of this manual.

### BATTERY PRECAUTIONS

1. Keep all sparks and flames away from the battery. Fumes from the battery's electrolyte solution are extremely explosive. Acid propelled by an explosion can cause blindness if it comes in contact with eyes.



2. Wear safety glasses when working near batteries. If you come in contact with battery electrolyte solution wash off **immediately** with water.

3. Do not tip batteries more than 45 degrees, to avoid spilling electrolyte solution and causing a chemical burn.

4. To avoid injury from a spark or short circuit, **disconnect** the battery ground cable before servicing any part of the electrical system. Failure to do so can result in electrical shock and burns.

5. Use jumper cables only in recommended manner. Improper use can result in battery explosion or unexpected motion. Refer to the engine and battery pages of the **Maintenance** section of this manual.

### TIRE PRECAUTIONS

1. Failure to follow proper procedure when mounting a tire on a wheel or rim can result in an explosion which may result in serious injury or death.

2. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.

3. Have a qualified tire dealer or repair service technician perform required tire maintenance.

4. When inflating tires, use a self attaching inflation chuck with remote shut off. Stand clear of the tire.

5. Do not inflate the tire beyond the tire manufacturer's recommended inflation pressure.

6. Do not operate the machine with loose wheels or rims. Check wheel nuts periodically for proper tightening torque.

7. Do not hammer on rims with steel hammers. Use rubber, lead, plastic or brass faced mallets if necessary.

8. Block the tires and wheel on opposite side of the vehicle before you place a jack in position.

9. Place hardwood blocks under the jack regardless of how hard the ground is. To reduce the risk of injury or death from crushing, always support the vehicle with blocks or preferably jack stands in case the jack should slip.

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# SAFETY

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## TRANSPORT PRECAUTIONS

1. Always comply with local regulations regarding transporting equipment on public roads and highways. **DO NOT DRINK AND DRIVE.**
2. Make sure that all lights and reflectors that are required by local highway and transport authorities are in place, are clean, are in good repair and can be seen clearly by all overtaking and oncoming traffic.
3. Always raise and secure spraybar wings before transporting.
4. Do not exceed legal speed limit and wear your seat belt.

## STORAGE PRECAUTIONS

1. Store the RMT in an area away from human activity.
2. Do not permit children to play on or around the stored machine. Serious injury can result from slips and falls.
3. Make sure the unit is stored in an area that is firm, level and free of debris.
4. Store the RMT inside a building or cover with a weatherproof tarpaulin and support securely.

## SAFETY DECALS

1. Become familiar with the content and the position of each Safety Decal. **Important information is written on the decals.** The location and description of each safety decal is described or illustrated on the following pages.
2. Keep safety decals and signs clean and legible at all times.
3. Replace decals and signs that are missing or cannot be read easily.

4. When replacing parts that previously displayed a safety decal, be sure to replace the decal as well.
5. Obtain safety decals or signs from your Authorized ROSCO Dealer.

## DECAL INSTALLATION

1. Be sure that the installation area is clean and dry. Use hot soapy water and dry area thoroughly before installing decals.
2. Decide on the exact position by taking measurements and test fitting before you remove any of the backing paper.
3. For decals with no top protection paper, decide on the location for the decal and remove the smallest adhesive backing of the split backing paper.
4. Align the decal over the specified area and carefully press the small portion with the exposed adhesive backing in place.
5. Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
6. Small air pockets can be pierced with a pin and smoothed out using a piece of decal backing paper.
7. If the decal has a protective top paper, use hot soapy water on the surface to which the decal is being applied. Leave wet. After deciding on the location, remove the backing paper and soak the decal in clean soapy water before application. This will help to alleviate air bubbles in the finished decal.
8. Smooth the decal into place with a sponge, and check for air bubbles. Small air pockets may be pierced with a pin and smoothed out. When the decal is completely smoothed out, carefully remove the top paper.



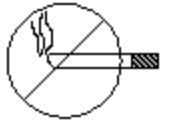
# SAFETY DECALS

HYDRAULIC FLUID  
 FILL TO BOTTOM OF SCREEN  
 USE CHEVRON AW MV ISO 32  
 DO NOT MIX OILS  
 CHECK MANUAL SPECIFICATIONS  
 FOR PERMITTED SUBSTITUTES 37684

DECAL 37684

LEFT SIDE

**WARNING**



**FIRE HAZARD**

To prevent serious injury or death:

1. Keep away from sparks, open flames and incandescent material.
2. Follow burner lighting and shut-down procedures.
3. Do not smoke near machine.

WARNING DECAL #35688

**SAFETY INSTRUCTIONS**

High Pressure Diesel Burner Operation

Always tank circulate asphalt when heating.

Verify flue(s) are submerged before lighting.

Burner lighting:

1. Turn burner master, fuel, and blower switches off.
2. Set position of temperature on controller.
3. Turn master burner switch on inside cab.
4. Turn lower flue fuel on.
5. Turn lower flue blower on.
6. Repeat 4 and 5 for upper flue, if equipped.

If burner does not start immediately shut off fuel, run blower to clear flue, then retry.

When burners are shut off by controller, temperature lost, burner master switch must be reset prior to restarting.


Burner extinguishing:

1. Turn fuel switches off.
2. Turn blower switches off.
3. Turn master burner switch off inside cab.

37764

SAFETY INSTRUCTION DECAL #37764

**DANGER**



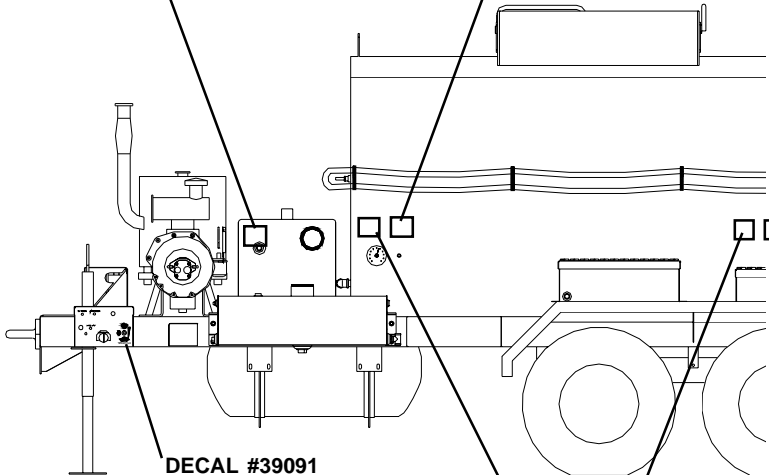
**EXPLOSION HAZARD**

To prevent serious injury or death:

1. Keep machine and material away from sparks or open flames. Flares are flammable.
2. Do not load when there is water in bottom of tank. Water can cause explosion.
3. Purge sprayer of fluid before circulating asphalt through pipes or hoses. Vapors can explode.
4. Do not operate burners unless burner tubes are completely submerged.
5. Do not mix grades of material.
6. Do not exceed asphalt flash temperature. Hot flares can explode.
7. Do not operate burners while vehicle is being loaded or is in motion.

7526

DANGER DECAL #35685  
 LOCATED ON BOTH SIDES OF TANK



DECAL #39091  
 SEE NEXT PAGE FOR  
 ACTUAL DECAL

**CAUTION**

1. Read and understand Operator's Manual before using.
2. Train operators before allowing them to use machine. An untrained operator is not qualified to use machine.
3. Wear protective gear for face, hands, feet and body when operating machine.
4. Keep all guards in place.
5. Keep a fire extinguisher in cab.
6. Asphalt and machine are hot and can cause severe burns.
7. Do not operate burners when filling or transporting oil when burner tubes are not completely submerged.
8. Do not load when there is water in bottom of tank.
9. Purge sprayer of fluid before circulating hot material to prevent explosion.
10. Do not heat tank above material flash point.
11. Clear area of bystanders before starting.
12. Close propane tank valve and then burner valve when extinguishing burner.
13. Keep machine and material away from sparks and open flames.
14. Do not drink and drive.
15. Review safety instructions before starting.

7526

CAUTION DECAL #35684

**WARNING**



**HOT SURFACE HAZARD**

To prevent serious injury or death:

1. Stay away from burner and flue stack when heating material in tank.
2. Keep others away.
3. Follow burner operating instructions.

7526

WARNING DECAL #35690  
 LOCATED ON BOTH SIDES OF TANK

**WARNING**



**HOT MATERIAL HAZARD**

Hot Material and Machine can cause severe burns. To prevent serious injury or death:

1. Do not touch material or machine with bare skin. Contact can cause serious burns.
2. Wear protective gear for face, hands, feet and body when operating.
3. Review safety and operating instructions before starting.

7526

WARNING DECAL #35689  
 LOCATED ON BOTH SIDES OF TANK

# SAFETY DECALS



DECAL #33908



DECAL #D7

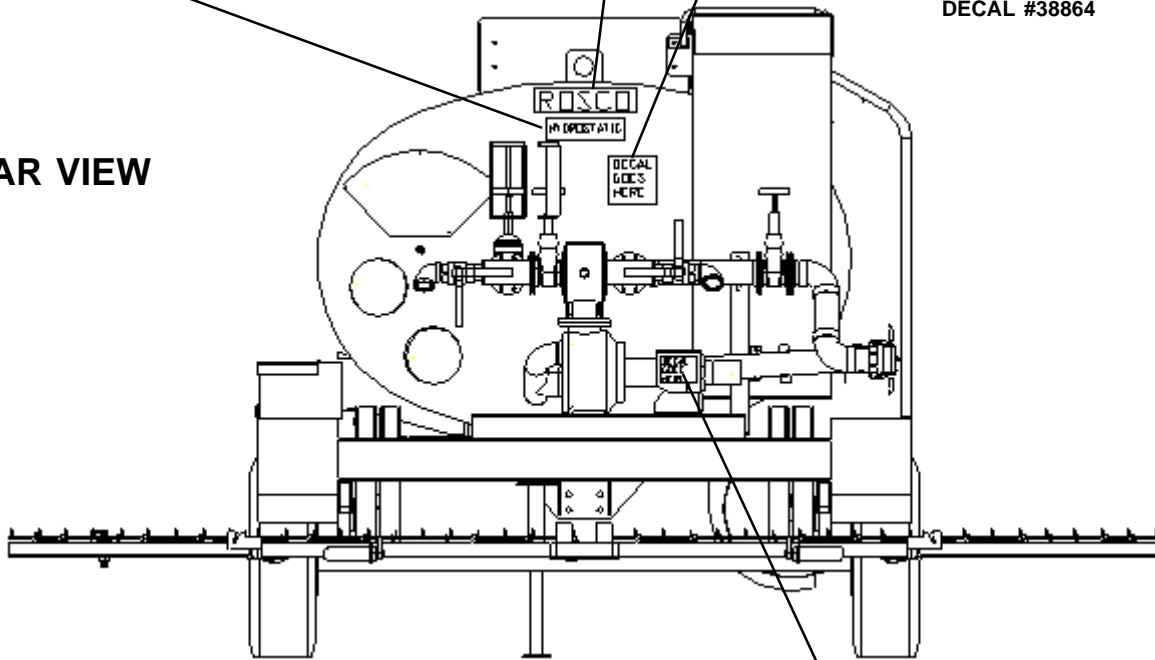
FUNCTION	AUTOMATIC VALVES			MANUAL VALVES						
	1	2	3	4	5	6	7	8	9	10
OFF	OFF	OFF	OFF	OFF	OFF	DTT	OFF	OFF	OFF	OFF
LOAD	OFF	Y	Y	OFF	OFF	DTT	OFF	OFF	OFF	Y
TANK CIRCULATE	X	Y	Y	OFF	OFF	DTT	OFF	OFF	OFF	OFF
HANDSPRAY	X	OFF	OFF	OFF	OFF	Y	OFF	OFF	OFF	OFF
SPRAYBAR CIRCULATE	X	Y	OFF	Y	Y	DTT	OFF	OFF	OFF	OFF
SPRAYBAR SPRAY	X	OFF	Y	Y	Y	DTT	OFF	OFF	OFF	OFF
UNLOAD	X	OFF	OFF	OFF	OFF	DTT	Y	OFF	OFF	OFF
TRANSFER	OFF	OFF	OFF	DTT	OFF	DTT	Y	OFF	OFF	OFF
SUCK BACK	X	OFF	OFF	Y	Y	DTT	OFF	OFF	OFF	OFF
CLEANOUT	OFF	OFF	Y	Y	Y	DTT	OFF	OFF	Y	OFF
SOLVENT CIRCULATE	OFF	OFF	Y	Y	OFF	DTT	OFF	Y	OFF	OFF

Y=VALVE OPEN  
 AUTOMATIC VALVES OPERATED FROM CONTROL BOX  
 REFER TO OPERATORS MANUAL FOR OPERATING PROCEDURES

38864

DECAL #38864

REAR VIEW



**ROSCO SPRAY NOZZLE GUIDE**

NOZZLE SIZE	PART NO.	FLOW RATE GPM MAX.	APPLICATION RATE GAL PER SQ YD
No. 00	35565	12	.03 - .08
No. 0	32977	30	.05 - .21
No. 1	32918	40	.10 - .30
No. 2	32919	85	.25 - .50
No. 3	32920	115	.35 - 1.0

CORRECT NOZZLE DEPENDS ON APPLICATION RATE, TRUCK SPEED AND TYPE OF MATERIAL BEING SPRAYED.

- EXCEEDING NOZZLE MAX FLOW RATE MAY CAUSE FOGGING.
- EXCEEDING 400 FPM TRUCK SPEED AT MAX APPLICATION RATE FOR NOZZLE WILL EXCEED MAX FLOW RATE.
- USING NOZZLE TOO LARGE WILL CAUSE POOR SPRAY PATTERN.

36986

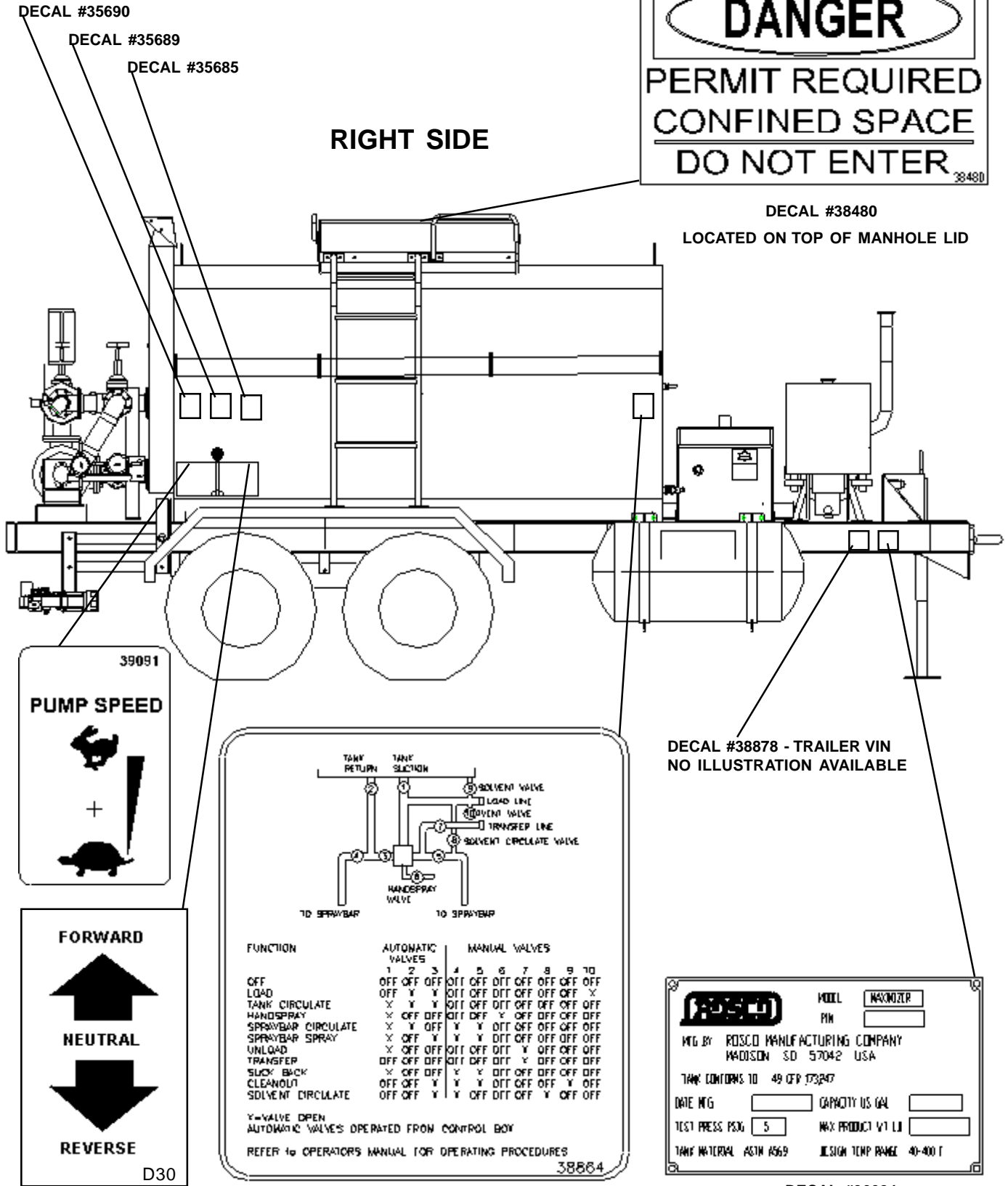
DECAL #36986 - SPRAY NOZZLE GUIDE LOCATED INSIDE LID OF LARGE TOOL BOX ON RIGHT SIDE

Do not operate without guards in place. 35943

DECAL #35943

# SAFETY DECALS

SEE PREVIOUS PAGE FOR ACTUAL DECALS

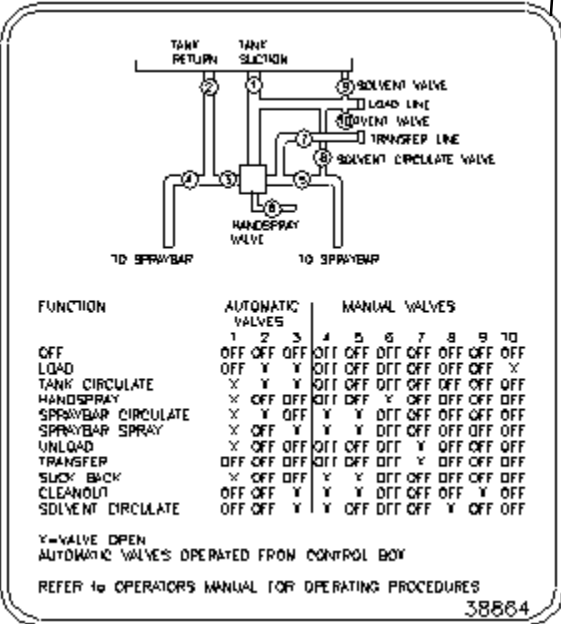


**DANGER**  
**PERMIT REQUIRED**  
**CONFINED SPACE**  
**DO NOT ENTER** 38480

DECAL #38480  
 LOCATED ON TOP OF MANHOLE LID

39091  
**PUMP SPEED**  
  
 +

**FORWARD**  
  
**NEUTRAL**  
  
**REVERSE**  
 D30



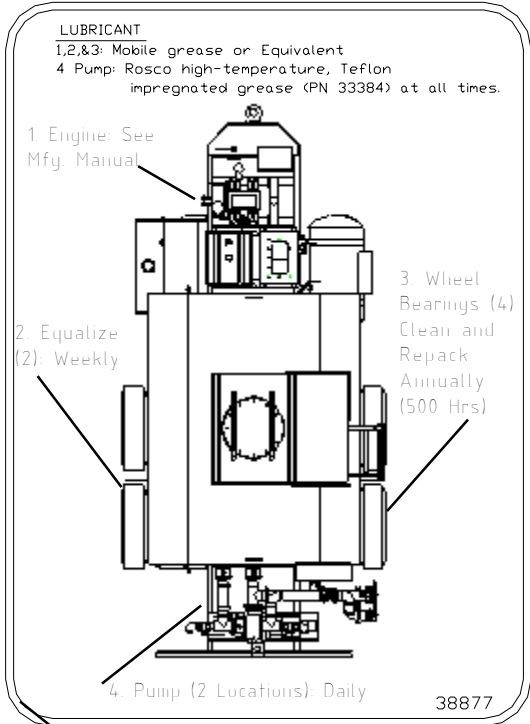
DECAL #38878 - TRAILER VIN  
 NO ILLUSTRATION AVAILABLE

**ROSCO** MODEL   
 PIN   
 MFG BY ROSCO MANUFACTURING COMPANY  
 MADISON SD 57042 USA  
 TANK CONTAINS TO 49 GPD 573247  
 DATE MFG  CAPACITY US GAL   
 TEST PRESS PSIG  MAX PRODUCT WT LB   
 TANK MATERIAL ASTM A569 DESIGN TEMP RANGE 40-400 F

DECAL #38864

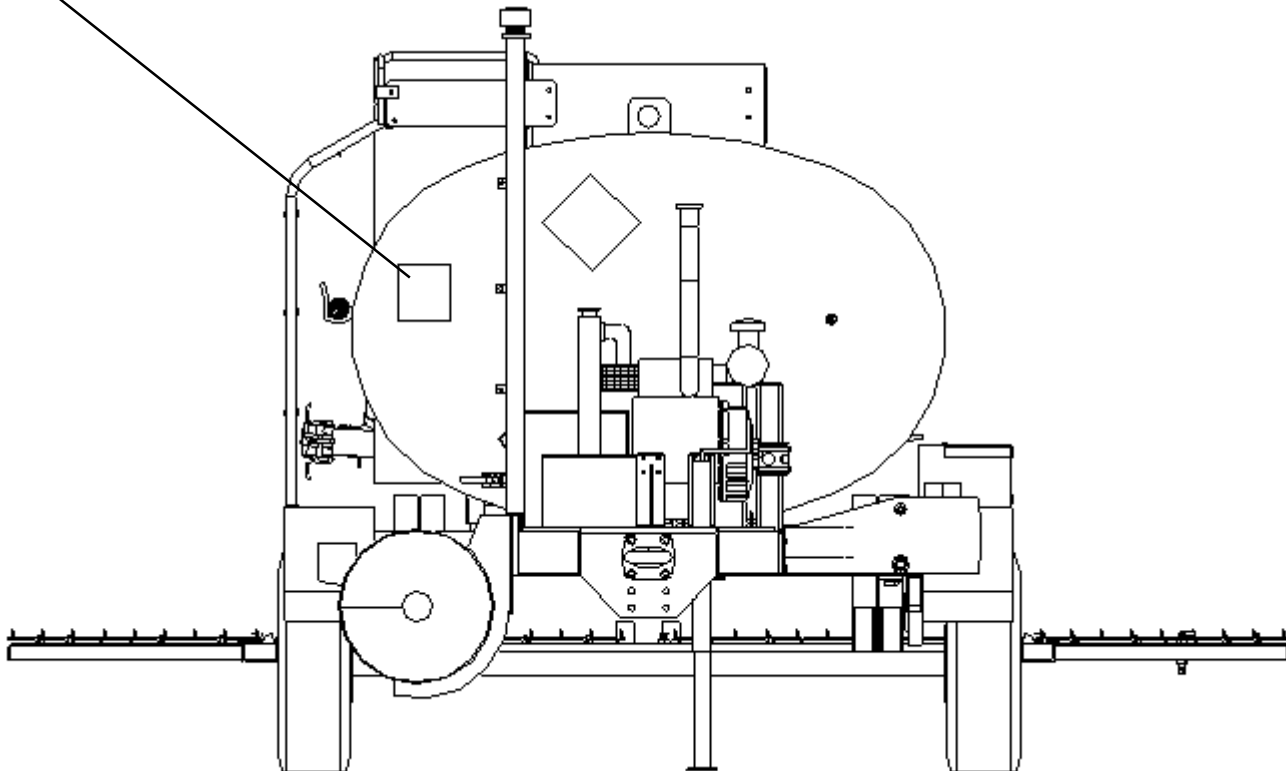
DECAL #36624

# SAFETY DECALS



DECAL #38877 - MAINTENANCE CHART

FRONT VIEW



DECAL #D-13.  
LOCATED AT FRONT  
OF TRAILER HITCH

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## MATERIAL SELECTION

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This section will help the operator better understand the properties of the asphalt product being used. The selection of the right product is generally dependent on the following considerations:

- A. Availability of various types of aggregate.
- B. Availability of various liquid asphalt grades.
- C. Climate conditions anticipated during applications.
- D. Traffic conditions during application.
- E. Contract specifications.

The information given in the charts in this section are based on industry standards. It is important to note that some asphalt product manufacturers have grades or mixtures which do not conform to industry standards. These materials are often tailored to local geographic conditions and may provide superior performance to the standard grades.

There are many types and grades of asphalt products. The best results can be obtained by trying several different types of asphalt and aggregates. The following classifications and grades of asphalts are provided to help in the selection.

**ASPHALT CEMENT (AC):** Asphalt that is refined to meet specifications for paving, industrial, and special purposes.

**EMULSIFIED ASPHALT:** An emulsion of asphalt cement and water with a small amount of an emulsifying agent. The emulsifying agent determines the charge of the asphalt particles. It may have a negative (-) charge called anionic, or a positive (+) charge called cationic.

An anionic type of emulsion will work best with aggregates having positive (+) surface charges such as limestone and dolomite.

A cationic type of emulsion will work best with aggregates having negative (-) surface charges such as siliceous or granitic aggregates.



**ATTENTION:** *DO NOT mix emulsion types, especially anionic with cationic.*

### Standard grades of Emulsified Asphalt are:

ANIONIC (- charge): RS-1, RS-2, MS-1, MS-2, MS-2h, HFMS-1, HFMS-2, HFMS-2h, HFMS-2s, SS-1, SS-1h.

CATIONIC (+ charge): CRS-1, CRS-2, CMS-2, CMS-2h, CSS-1, CSS-1h.

RS, MS, SS: Indicates the emulsion setting rate - (Rapid Set, Medium Set, Slow Set)

h,s: Indicates if a hard or soft base asphalt is used in the mix.

HF: Indicates High Float which means chemicals have been added to permit a thicker film of asphalt on the aggregate particles and prevent drain off of asphalt from the aggregate.

C: The letter "C" in front of the emulsion type means it is a cationic asphalt. The absence of this letter means it is anionic asphalt.

**CUTBACK ASPHALT:** Asphalt cement which has been liquefied by blending with petroleum solvents. Upon exposure to the air, the solvents evaporate, leaving the asphalt cement to perform its function of cementing and waterproofing. Cutback asphalts are divided into three main grades.

Rapid Curing (RC) Asphalt: This is cutback asphalt composed of asphalt cement and naphtha or gasoline-type dilutant of high volatility.

Medium Curing (MC) Asphalt: This cutback asphalt is composed of asphalt cement and kerosene-type dilutant of medium volatility.

Slow Curing (SC) Asphalt: This is a cutback asphalt composed of asphalt cement and oils of low volatility.

It is important to remember that cutback asphalts are often used at temperatures above their flash points.

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## Material Selection

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**DANGER:** *When using cutback asphalts, extreme caution must be used to prevent fire or explosion. Open flames or sparks must not be permitted close to these materials. Use controlled heat only. Never use open flames to examine tanks in which these materials have been used or stored. Be sure that all vehicles transporting these materials are properly vented. Only experienced personnel must be permitted to supervise the handling of these materials. Be sure all applicable interstate and intrastate commerce requirements are met.*



Failure to follow these guidelines can cause several problems. When materials are mixed it can increase the possibility that the material will not meet the specifications of the job. More importantly, mixing materials can increase the risk of fire or explosion. For example, light hydrocarbons may be present in a tank from previous loads or from diesel oil or solvents used in cleaning the tank.

To reduce the risks from such problems, use the guide previously mentioned to be sure contamination is reduced.

### VISCOSITY

Viscosity is a fluid's resistance to flow (how thick and gluey a fluid is). The recommended viscosity for spraying with a distributor is 25 to 50 Saybolt Furol seconds (45 - 100 Centistokes Kinematic Viscosity).

The recommended viscosity for loading or pumping is a maximum viscosity of 400 Saybolt Furol seconds (800 Centistokes Kinematic Viscosity). Viscosities above these ranges will limit the performance of the machine. Your asphalt provider will be able to tell you the viscosity of your product.



**DANGER:** *Be sure there is no water in the tank before loading. Hot material will turn water into steam and can cause an explosion.*

### CONTAMINATION

It is very important to remember that when you are loading a new material into the RMT, you must be sure that the new material is compatible with the residual material in the tank. The safest thing to do is to completely clean out the tank and the entire system. Total clean out is necessary if you are not sure of the last material that was used in the unit.

However, some materials can be loaded with a small residual amount (0.5 % of capacity or less) of the previous material remaining in the tank. Refer to the "Guide for Loading Asphalt Products" on the following page as a guidelines for which materials will tolerate being mixed.

*All information in the Material Selection Section was obtained from publications of the Asphalt Institute.*

## Guide For Liquid Asphalts Temperatures

Type & Grade	Spraying Temperature		Storage Temperature		Min. Flash Point	
	°C	°F	°C	°F	°C	°F
<b>Asphalt Cements</b>						
AC-2.5	130+	270+	160	320	163	325
AC-5	140+	280+	166	330	177	350
AC-10	140+	280+	174	345	219	425
AC-20	145+	295	177	350	232	450
AC-40	150+	300+	177	350	232	450
AR-1000	135+	275+	163	325	205	400
AR-2000	140+	285+	168	325	219	425
AR-4000	145+	290+	177	350	227	440
AR-8000	145+	290+	177	350	232	450
PEN 40-50	150+	300+	177	350	232	450
PEN 60-70	145+	295+	177	350	232	450
PEN 85-100	140+	280+	177	350	232	450
PEN 120-150	130+	270+	177	350	219	425
PEN 200-300	130+	270+	168	335	177	350
<b>Emulsified Asphalts</b>						
RS-1	20 - 60	70 - 140	20 - 60	70 - 140		
RS-2	50 - 85	125 - 185	50 - 85	125 - 185		
HFRS-2	50 - 85	125 - 185	50 - 85	125 - 185		
MS-1	20 - 70	70 - 160	10 - 60	50 - 140		
MS-2	20 - 70	70 - 160	50 - 85	125 - 185		
MS-2h	20 - 70	70 - 160	50 - 85	125 - 185		
HFMS-1	20 - 70	70 - 160	10 - 60	50 - 140		
HFMS-2	20 - 70	70 - 160	50 - 85	125 - 185		
HFMS-2h	20 - 70	70 - 160	50 - 85	125 - 185		
HFMS-2s	20 - 70	70 - 160	50 - 85	125 - 185		
SS-1	20 - 70	70 - 160	10 - 60	50 - 140		
SS-1h	20 - 70	70 - 160	10 - 60	50 - 140		
CRS-1	50 - 85	125 - 185	50 - 85	125 - 185		
CRS-2	50 - 85	125 - 185	50 - 85	125 - 185		
CMS-2	20 - 70	70 - 160	50 - 85	125 - 185		
CMS-2h	20 - 70	70 - 160	50 - 85	125 - 185		
CSS-1	20 - 70	70 - 160	10 - 60	50 - 140		
CSS-1h	20 - 70	70 - 160	10 - 60	50 - 140		
<b>Cutback Asphalts</b>						
MC-30	30+	80+	54	130	38	100
MC-70	50+	120+	71	160	38	100
MC-250	75+	165+	91	195	66	150
MC-800	95+	200+	99	210	66	150
MC-3000	110+	230+	99	210	66	150
RC-70	50+	120+	71	160	-	-
RC-250	75+	165+	91	195	27	80
RC-800	95+	200+	99	210	27	80
RC-3000	110+	230+	99	210	27	80
SC-70	50+	120+	71	160	66	150
SC-250	75+	165+	91	195	79	175
SC-800	95+	200+	99	210	93	200
SC-3000	110+	230+	99	210	107	225

## Guide For Loading Asphalt Products

Last Product in Tank	<b><u>PRODUCT TO BE LOADED</u></b>			
	Asphalt Cement	Cutback Asphalt	Cationic Emulsion	Anionic Emulsion
Asphalt Cement	OK to Load	OK to Load	Empty to no Measurable Quantity	Empty to no Measurable Quantity
Cutback Asphalt	Empty *	OK to Load	Empty to no Measurable Quantity	Empty to no Measurable Quantity
Cationic Emulsion	Empty *	Empty to no Measurable Quantity	OK to Load	Empty to no Measurable Quantity
Anionic Emulsion	Empty *	Empty to no Measurable Quantity	Empty to no Measurable Quantity	OK to Load
Crude Petroleum and residual fuel oils	Empty *	Empty to no Measurable Quantity	Empty to no Measurable Quantity	Empty to no Measurable Quantity
Any product not listed above	Tank must be cleaned	Tank must be cleaned	Tank must be cleaned	Tank must be cleaned

*\* Any material remaining will produce dangerous conditions.*

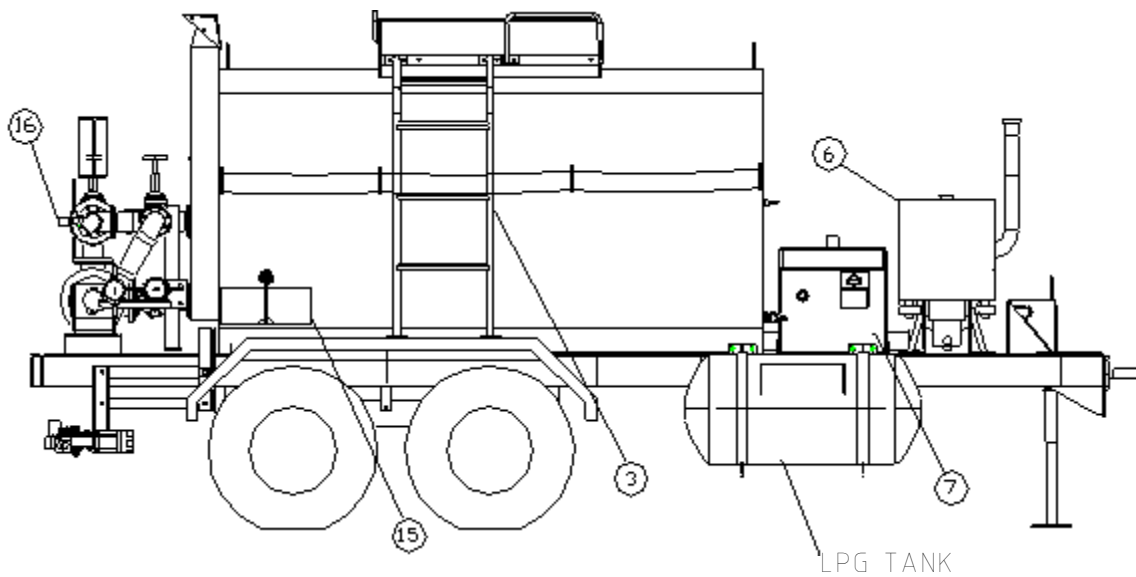
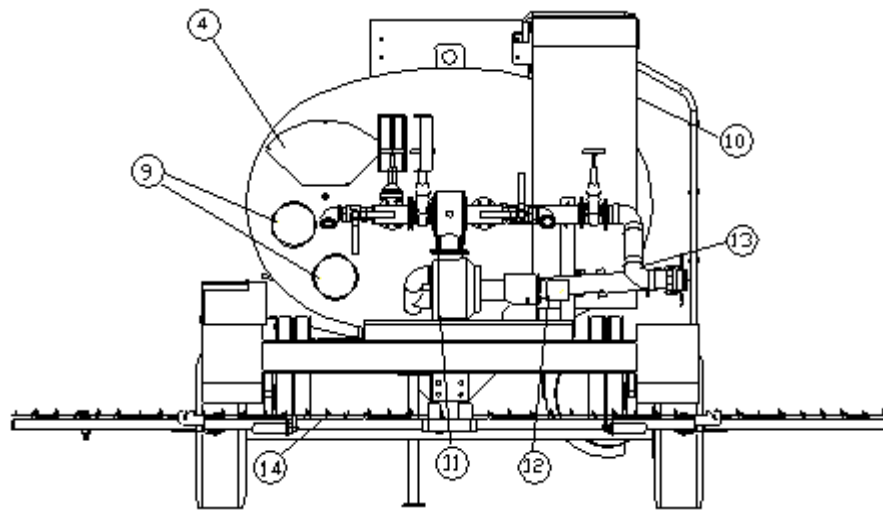
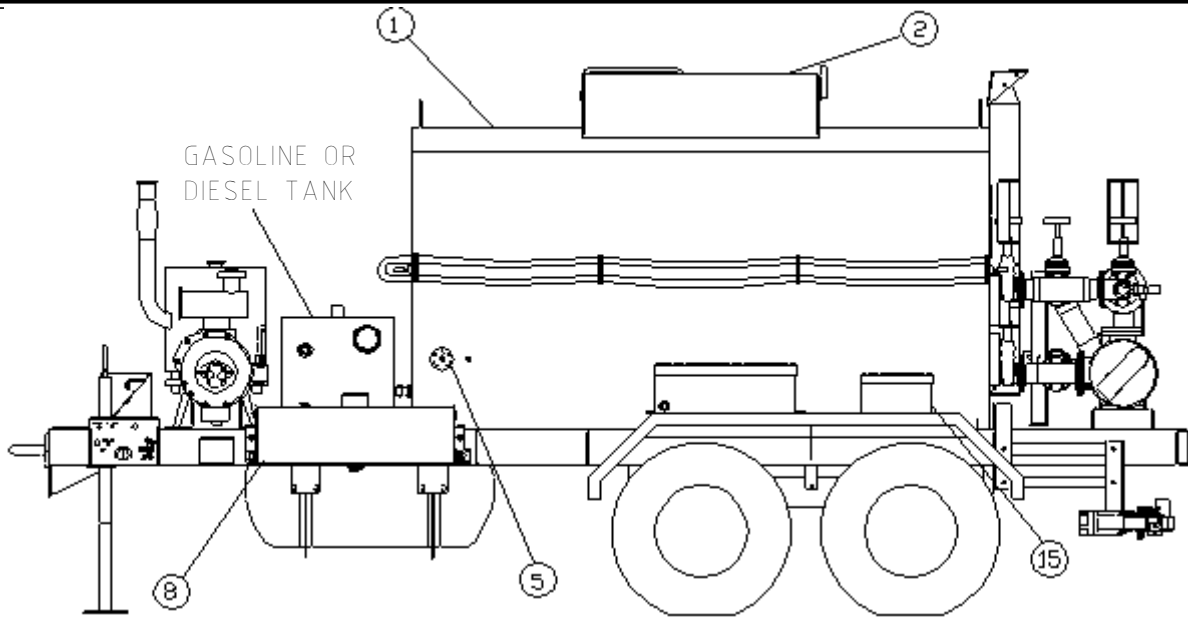
*All information in the Material Selection Section was obtained from publications of the Asphalt Institute.*

# SECTION II

## COMPONENTS & CONTROLS

1. COMPONENTS .....	2.2 - 2.3
2. CONTROLLER.....	2.4 - 2.5
3. NOZZLE INFORMATION .....	2.5
4. MANUAL CALIBRATION INSTRUCTIONS .....	2.6 - 2.8

# COMPONENTS



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# COMPONENTS

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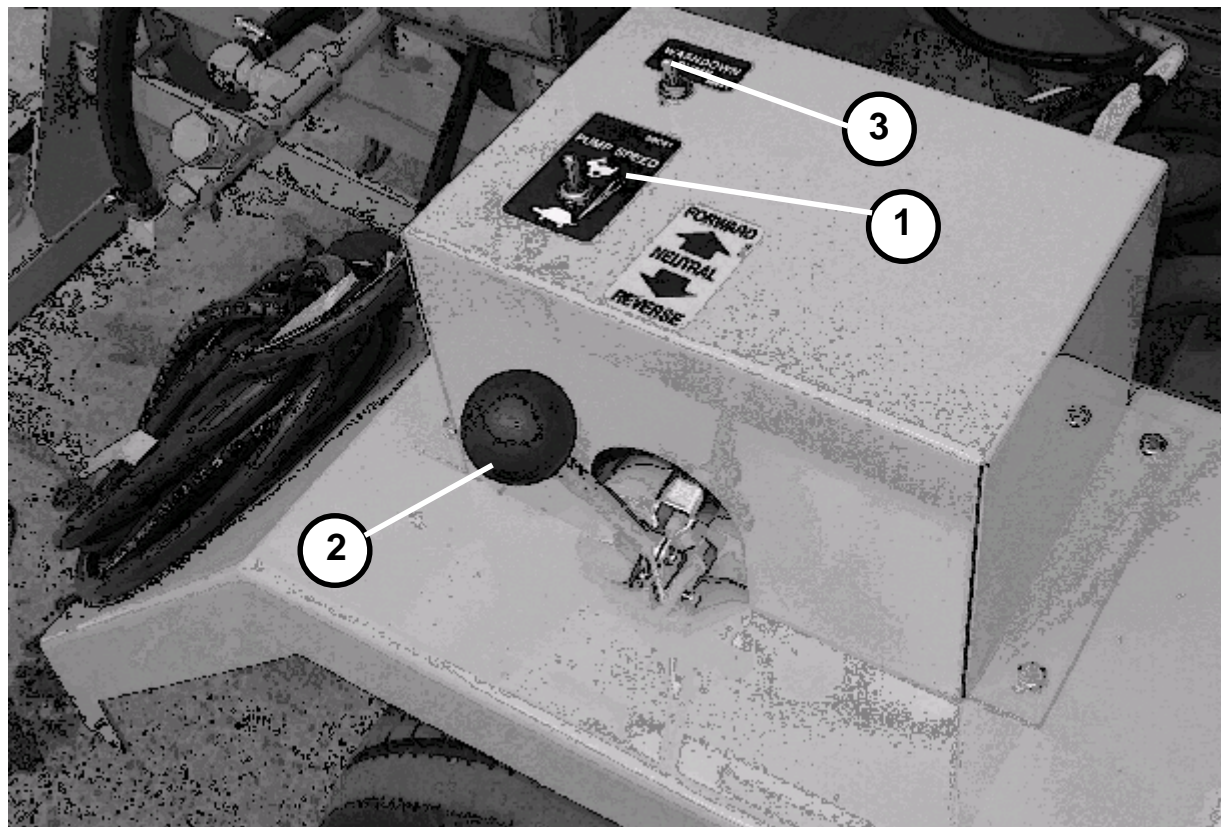
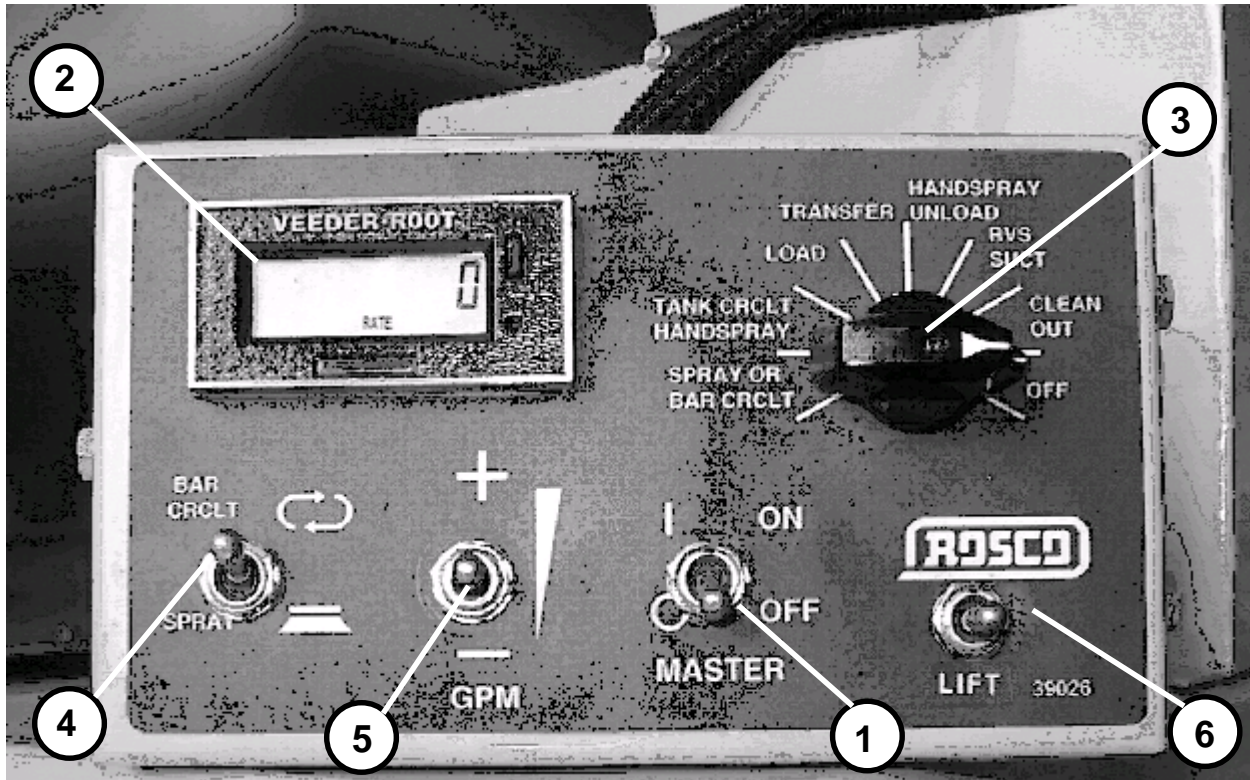
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## A. RMT COMPONENTS

1. **ASPHALT TANK:** An insulated tank for holding the hot bituminous asphalt material.
2. **TANK TOP OPENING:** Located at top of tank. Provides an opening for filling tank. Has a dipstick for measuring tank quantity and a loading screen.
3. **LADDER:** Provides access to top of tank and opening.
4. **TANK CONTENT GAUGE:** Located on the rear of tank. Measures the quantity of the material in tank.
5. **THERMOMETER:** Located on the front lower left side of tank. Indicates the temperature of material in the tank. Pencil thermometer is standard.
6. **HYDRAULIC PUMP:** Mounted on the RMT engine. It is a variable displacement pump that provides power to the hydraulic motor that turns the asphalt pump.
7. **HYDRAULIC TANK:** Supplies hydraulic fluid to the hydrostatic system.
8. **SOLVENT FUEL TANK:** Mounted on the left or right side of tank. Supplies the solvent for internal cleanout, external cleaning and for fuel to the burners.
9. **BURNERS:** Located at rear of RMT and used to heat the material in the tank.
10. **EXHAUST STACK:** Directs the burner exhaust up the rear of the tank and away from the operating area.
11. **ASPHALT PUMP:** Used to load, unload, circulate and spray the asphalt, transfer, reverse suction and cleanout.
12. **HYDRAULIC MOTOR:** Located on right side of the Asphalt Pump. It is a fixed displacement motor used to turn the Asphalt Pump.
13. **LOAD AND TRANSFER LINES:** Used to load and unload asphalt into or out of tank and to transfer asphalt from one tank to another container. Also contains load screens.
14. **SPRAYBAR:** Located at rear of the RMT. Distributes material from tank to road surface.
15. **REAR CONTROLLER:** Adjusts the asphalt pump direction (forward, neutral or reverse), the asphalt pump speed and the washdown system, if equipped. Located on left rear.
16. **FENDER CONTROL BOX:** Contains thermostat to control high temperature limits for the burners. Located on right rear fender next to tool box.
17. **HAND SPRAY WAND:** A hand held spray gun on the end of a hose that is used by the operator to cover surfaces not reached by the spraybar.
17. **LOAD HOSE (OPTION):** Used to load or unload material.
18. **WASHDOWN (OPTION):** Used to wash the machine with solvent or diesel fuel to keep it clean. A valve is located on the washdown wand. Open the valve when starting to wash the machine and close it when the washdown is complete. Use the switch in the Rear Pump Control Box to turn on the pump.

**NOTE:** System Power must be **ON** in order to provide power to the washdown pump.

# CONTROLS



# REAR CONTROLLER

# CONTROLS

## B. CONTROLLER

**1. SYSTEM POWER:** The master On/Off switch for the control panel. The panel must be turned on before the machine can operate.

**2. LED DISPLAY SCREEN:** Displays the pump speed in gallons per minute. (GPM)

**3. MODE SELECTION:** Controls and determines the eight possible functions of the asphalt distributor.

**4. SPRAYBAR MASTER:** The master control switch for all of the nozzles on the spraybar. When turned on, all individual spraybar segments will spray asphalt unless the individual spray bar valves are turned off manually. This switch has two positions:

**(1) Bar Circulate (Up):** This circulates hot asphalt through the pump and bar.

**(2) Spray (Down):** This opens all the bar valves actuated and directs all asphalt pumped to the bar.

**5. PUMP SPEED CONTROL:** Controls the speed of the hydraulic motor which controls the GPM of asphalt distribution.

**6. SPRAY BAR LIFT:** Lifts and lowers the spray bar.

## C. REAR CONTROLLER

The rear controller is used to change pump speed and pump direction. It is located on the right side of the tank, at the rear.

**1. PUMP SPEED:** Located on top of the Rear Controller. It increases or decreases the asphalt pump speed which causes more or less asphalt to be pumped.

**2. CONTROL VALVE:** Located on the front of the Rear Controller. It controls the asphalt pump direction, either forward, off or reverse.

## 3. WASHDOWN SWITCH (OPTION):

Activates washdown system. It is located on top of the Rear Controller.

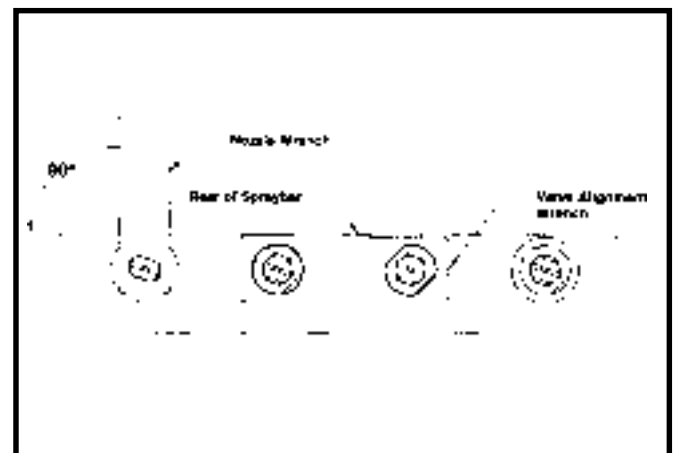
## D. NOZZLES

Correct nozzle selection depends on:

1. The Application Rate
2. The Truck Speed
3. The Type of Material being sprayed.

The standard ROSCO nozzle size is a No. 1. However, other factors will determine efficiency and the quality of the spray pattern. Exceeding nozzle maximum flow rate may cause fogging and inconsistent application rates. Using a nozzle that is too large will cause a poor spray pattern.

The recommended working nozzle angle is 20 degrees and is set to that specification at the factory. After changing nozzles or when adjustments need to be made, use the ROSCO Nozzle Wrench and the ROSCO Alignment Tool for accurate positioning. Tools are provided with each unit. (Figure 1)



**FIGURE 1**  
Nozzle Adjustment Tools

# CALIBRATION

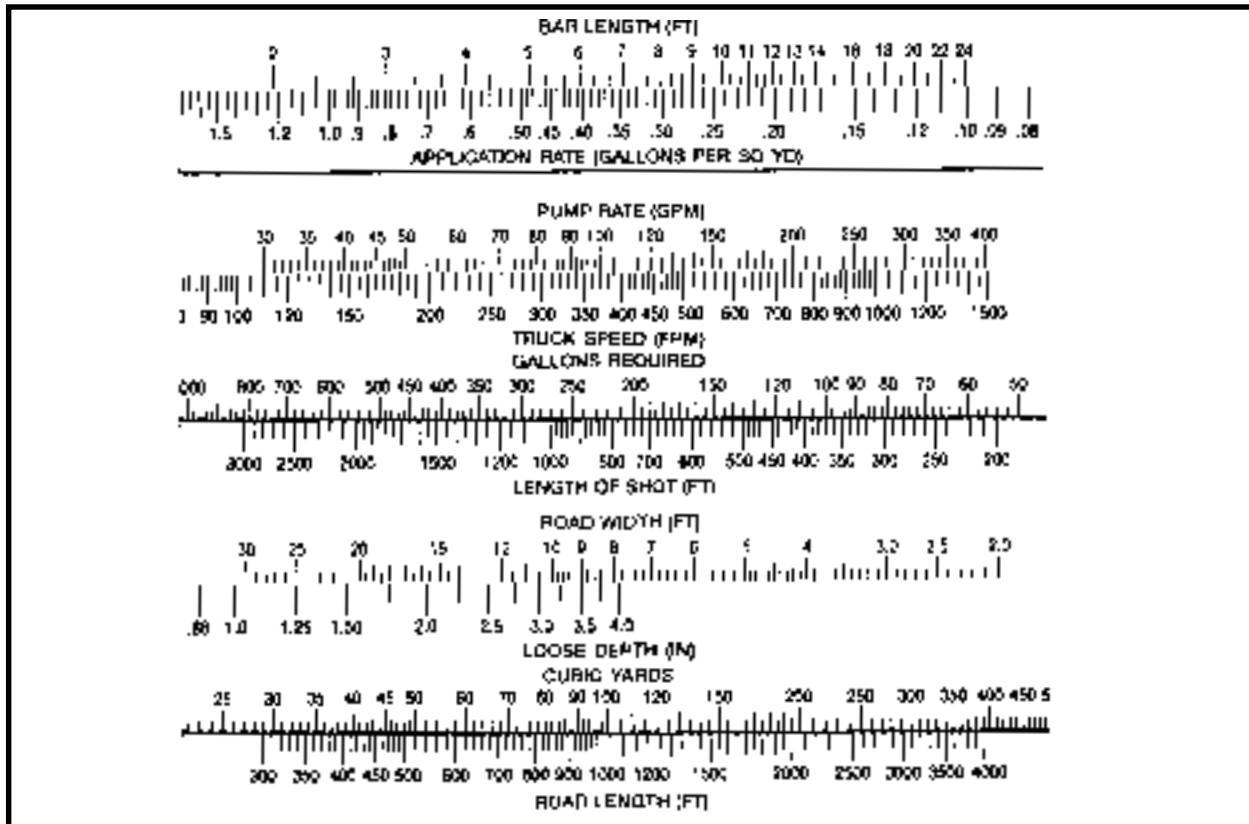


FIGURE 5  
Distributor Side Rule

## E. MANUAL CALIBRATION

Asphalt application rates are dependent upon nozzle size, pump speed, ground speed and spraybar width. Carefully review and follow the procedures for calculating the required settings, simulation of a run and doing a trial run to be sure the desired application rate is obtained.

### 1. CALCULATIONS

Use the ROSCO Asphalt Distributor Application Guide "Slide Rule" supplied with the RMT when determining the settings of the machine to obtain the desired performance.

Determine the type of nozzles used on the spraybar. The nozzle type will determine the range of pump flow that will give an acceptable nozzle spray pattern.

Determine the application rate in Gal/Sq.Yd. or Liter/Sq.Meter for the work to be done. This will be specified by the job requirements and selected nozzle size.

The slide rule covers spray bar widths from 4 feet to 24 feet in 1 foot increments. Only the operator will know the width of the spraybar that will be used. Determine the ground speed and the pump flow using the spraybar width being used for the specific job at hand.

- a. Go to the top scale for the bar length. Move the inner sleeve to the desired application rate with the correct bar length.

For Example:

- Spraybar Length = 14 Feet
- Application Rate = .175 Gal/Sq.Yd.

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# CALIBRATION

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- For No. 1 Nozzles the recommended pump rate is 8-14 GPM per feet bar length. (3 nozzles).
  - For 14 Ft bar, pump rate is then 112 (14 x 8) to 196 (14 x 14) or approximately 115 - 196 GPM. (150 is max).
- b.** Go to the center scale (Pump Rate) and bracket the pump rate from the above example (115 - 150 GPM).
  - c.** Look directly below the pump rate scale at the truck speed (FPM) scale. For 14 Ft bar and .175 rate setting you should read 425 FPM below 115 GPM and 550 FPM below 150 GPM.
  - d.** Select a truck speed between 425 and 550 FPM that is appropriate for the terrain and operating conditions.
  - e.** For this example, choose 130 GPM to insure a good fan. Select the pump flow rate above the selected truck speed. For example:
    - Select 480 FPM (5.45 MPH) as speed.
    - 130 GPM will be the pump setting.
  - d.** Check that the material in the tank is at the recommended application temperature.

**IMPORTANT:** Temperature affects the viscosity of the material. If the temperature is not at the application rate conditions, the range in viscosity could affect the accuracy of the calibration.

- e.** Select a transmission gear and axle ratio to give the required ground speed of 480 FPM. Use the truck readout to measure the speed. The best results are obtained when the truck engine speed is maintained between 1500 and 1800 RPM for a specific gear ratio.
- f.** Operate the unit in the Spray/Bar Circulate mode. Use the Engine Speed Control on the Controller to set the pump flow to 130 GPM at the specific RMT engine RPM for operation.
- g.** Now drive the unit over the application route in the specific gear, axle ratio, engine RPM, travel speed and set the pump rate.
- h.** Record all operating parameters on your data sheet for future reference.

**NOTE:** Do not exceed the nozzle maximum flow. 200 GPM is overflow for 36 #1 nozzles.

## 2. RUN SIMULATION

For this phase of the calibration, a loaded Distributor operating in the Spray/Bar Circulate mode will be driven per the operator's calculations. It is recommended that a data sheet be kept to record the machine performance and application information for future reference.

**IMPORTANT: Read Section III on Operation of Distributor before proceeding.**

- a.** Follow the pre-operation check list (Section III) before starting.
- b.** Load the tank.
- c.** Go to the simulation area.

## 3. TRIAL RUN

A trial run can be made with the unit spraying to verify the application rate. This may be required if the material being sprayed has a viscosity that is different than that normally sprayed.

- a.** Measure the amount of material in the tank. Reading the top opening measuring stick or weighing the unit before and after the run are good ways to measure the volume sprayed during the run. This latter method requires that you know the density or the weight per gallon of the asphalt.

# CALIBRATION

- b. Mark out a known distance on the spraying area. Use even numbers such as 600 or 900 feet to make the calculations easy. Leave a starting distance before you begin spraying to allow the truck speed and pump flow to stabilize.
- c. Start spraying as you cross the start line. Be sure to maintain the ground speed and engine RPM at the values specified on the data sheet.
- d. Watch the pump GPM readout closely. You may have to adjust the speed slightly to compensate for the change between Bar Circulate and Spray. Use the RMT Engine Speed Control to make the adjustment.
- e. Measure the depth or weigh the machine to determine the quantity sprayed.
- f. Calculate the expected results.

$$\frac{900 \text{ Ft Long} \times 14 \text{ Ft Wide} \times .175 \text{ Gal./Sq Yd}}{9 \text{ Sq Ft/Sq Yd}} = 245 \text{ Gal.}$$

or

$$\frac{2000 \text{ Ft Long} \times 14 \text{ Ft Wide} \times .175 \text{ Gal./Sq Yd}}{9 \text{ Sq Ft/Sq Yd}} = 544 \text{ Gal.}$$

- g. If the measured volume does not equal the calculated volume, adjust the flow rate to make them equal.  
For example:  
Calculated Volume = 544 Gal.  
Measured Volume = 500 Gal.

$$\frac{\text{Calculated Vol} \times \text{Pump Flow in GPM}}{\text{Measured Volume}} = \text{Correct GPM}$$

$$\frac{544 \text{ Gal.} \times 130 \text{ Gal.}}{500 \text{ Gal.}} = 141 \text{ GPM}$$

- h. Reset the pump flow to 141 GPM to obtain an application rate of .175 Gal./Sq.Yd.

APPLICATION RATE	SPRAYBAR LENGTH	NOZZLE SIZE	TRUCK GEAR	TRUCK SPEED	PUMP FLOW
.175 GAL./SQ YD	14 FEET	1	LOW, 2ND, 1500 RPM	480 FPM	141 GPM

**FIGURE 6**  
Application Data Sheet

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## OPERATION

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# SECTION III

## OPERATION

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## OPERATION

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The ROSCO Asphalt Distributor is the most important piece of equipment on a surface treatment project. It is made specifically to apply the asphalt product uniformly and in specified quantities.

The distributor has a power driven asphalt pump capable of handling products ranging from light applications of emulsified asphalt to heavy asphalt cements heated to spraying viscosity. At the back of the tank is a system of spray bars with nozzles through which asphalt is forced under pressure and applied to the road surface. The spray bars cover a variety of widths ranging from 4 in to 14 ft (10 cm to 4.3 m) in one pass, depending on their width.

The ROSCO RMT Distributor consists of a 1,000 gallon (3,785 liters) truck-mounted insulated tank. ROSCO distributors are equipped with a heating system that will maintain the asphalt at the proper spray temperature.

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### The Circulating System

The circulating system has an engine driven hydraulic pump which drives the hydraulic motor that powers the asphalt pump to:

- » fill the distributor tank,
- » circulate material through the bar and tank,
- » spray material through the bar or hand spray,
- » draw material back to the tank from the bar or hand spray,
- » pump material from the tank to outside storage and,
- » transfer material from one storage tank to another.

The spray bar must have a constant and uniform pressure along the entire length of the bar for uniform output at each nozzle.

The ROSCO RMT Distributor delivers a volume of asphalt to the spray bar which is regulated by a number of variables, including the application rate setting, the truck speed and the spray bar width.

Both the application rate and spray pattern are influenced by factors such as the selected application rate, the truck speed and nozzle size. If the nozzle size is not correct for the application rate and truck speed, the spray pattern will not be as desired. If the nozzles are too small, the liquid will

atomize, the spray pattern will distort and the result will be excessive over-spray or inconsistent application rate. If the nozzles are too large, the result will be streaking caused by low spray bar pressure. Refer to the nozzle selection chart (Page 3.8) to determine the correct nozzle size for the job.

### The Burner System

#### USE BURNERS PROPERLY!

These burners are only intended to be used to increase the temperature of liquid asphalt materials to proper spraying temperatures. This must be done while the liquid is being circulated in the tank.

If the material has cooled to the point that it will not flow easily and will not circulate, the operator must use extra care when heating the material. Improper heating will cause damage to the equipment and the material being heated.

The burners in the RMT have a very high heat output which must be dissipated through the asphalt. Thick asphalt is an excellent insulator and resists the conduction of heat through the material.

If the material is heated too hot or too quickly without the proper circulation, hot spots will be created near the rear of the tank at the flue tubes. This will damage the flue tubes and cause a break down of the material.

## OPERATION

**WARNING:** *Operating the burners without circulating the product can create explosive fumes. If the product **can not** be circulated after **10 minutes** of heating, the burners must be turned off. **Do not** try to heat material again for 30 minutes.*



If it is necessary to heat asphalt that has cooled more than 20 to 30 degrees below the optimum spraying temperature, the operator must use extreme care in trying to reheat the material. Run the burners for short periods of time only (10 to 15 minutes at a time) every 30 minutes to allow the heat to dissipate through the material.

The amount of time necessary to heat enough of the asphalt material to allow for proper circulation and heating will vary depending on the type of material, the type of burners, the tank size and the amount of material in the tank. If you have any doubts about the proper way to heat cooled asphalt, contact your asphalt supplier or equipment manufacturer.



**DANGER:** *Never operate the burners in a confined area such as a building or shed. Vapor build-up could cause an explosion.*



**DANGER:** *Never operate the burners if the flue tubes are not covered with at least 8 inches (20.32 cm) of material. The flue tubes can become red hot and ignite the vapors causing an explosion.*



**DANGER:** *Always park the RMT so the burners are up wind. Some asphalt materials emit flammable vapors from the vent that can be ignited by the burner flame and cause an explosion.*



**DANGER:** *Never operate burner equipment when RMT is being loaded, unloaded, in transit or while spraying asphalt. The flue tubes could be exposed causing an explosion and/or the material being sprayed could ignite causing a fire and explosion.*



**DANGER:** *Keep the tank vents clear to avoid a buildup of pressure in the tank when heating. Check the vents before starting the burners.*



**DANGER:** *Never use gasoline, alcohol or any other unapproved fuel in a diesel burner. Fire and explosion can occur.*



**DANGER:** *Do not operate the burners if the tank is leaking or a spill has occurred. Fire and explosion can occur.*



**DANGER:** *Do not operate the burners while wash down system is operational or has recently been used. Fire and explosion can occur.*



**DANGER:** *Do not operate the burners with top tank cover open. Fire and explosion can occur.*



**DANGER:** *Be sure to read, understand and follow all precautions for the type of cleaning material you are using.*

The burners are located on the rear left corner of the RMT. The flame from the burner is directed through the flue tubes along the bottom of the tank. Diesel or propane can be used as fuel, depending on the burner option specified. **Never operate the burners without first reviewing the instructions.**

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## OPERATION

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### 1. MACHINE BREAK-IN

Although there are no operational restrictions on the RMT when used for the first time, it is recommended that the following mechanical items be checked:

#### A. BEFORE STARTING

1. Read the RMT Operator's Manual and all Safety Decals.
2. Tighten the tank tie-down hardware.
3. For cold weather starting, refer to the diesel engine operator's manual.

#### B. AFTER OPERATING FOR 2 HOURS

1. Tighten all wheel bolts.
2. Tighten all fasteners and tank tie-down hardware as required.
3. Lubricate asphalt pump bearings with ROSCO high temperature Teflon impregnated grease. (part #33384)
4. Check all fluid levels.
5. Check that no hydraulic lines are being pinched or crimped.

#### C. AFTER 8 & 16 HOURS OPERATION

1. Repeat all checks described above for 2 Hour Check.
2. Go to **Maintenance Interval Chart** in **Section IV**.

### 2. PRE-OPERATING CHECK LIST

It is important for both personal safety and efficient operation that this check list be followed. Before operating the RMT Distributor and each time thereafter, the following areas should be checked:

#### A. VISUAL INSPECTION

1. Check the tightness of the tank tie-down hardware and tighten as required.
2. Check for loose fasteners and hardware

on the machine and spray bar. Tighten as required.

3. Check for any loose components. Tighten, secure or adjust as required.
4. Check the condition of all hydraulic lines, air lines, couplers, fittings and connections. Reroute, adjust, repair or replace any that are loose or damaged.
5. Check the routing of the electrical cable from the RMT to the Control Box in the truck cab. Insure that it is tied in position and directed over the hitch and does not cross any sharp corners or objects.

#### B. SERVICE AND MAINTENANCE

1. Lubricate the asphalt pump bearings using ROSCO high-temperature Teflon impregnated grease. (part# 33384)
2. Check all fluid levels: Hydraulic Tank, Solvent Tank and Burner Fuel Tank. Fill or add as required.
3. Check for leaks. Repair before starting.

#### C. SPRAYBAR INSPECTION

1. Check for loose fasteners and hardware on the machine and spray bar. Tighten as required.
2. Check the condition of all hydraulic lines, asphalt lines, couplers, fittings and connections. Reroute, adjust, tighten, repair or replace any that are loose or damaged.
3. Check the angle of the spray bar valves using the spray bar valve tool supplied. Valves set at the wrong angle will not open completely or will leak.
4. Check the angle of each nozzle using the nozzle wrench supplied with the machine. Be sure that they are all set at the same angle.

## OPERATION

### 3. FUNCTIONAL CHECK

Before starting the day's work, perform a functional check on each system and major component to insure that each is functioning properly. Use two people when performing the functional checks. One person in the truck cab to run the engine and RMT controls and one person at the appropriate check point.

#### A. HYDRAULIC CIRCUIT

1. Start the RMT engine and run at low idle.
2. Turn the Controller Master switch ON to activate the system. (Figure 1)
3. Visually check the direction of rotation of the asphalt pump. Viewing the pump from the drive motor end, clockwise rotation is forward (to the bar).

#### B. HYDROSTATIC CIRCUIT

It may be necessary to run the engine at 1500 RPM to provide sufficient oil flow to the hydrostatic circuit to operate the asphalt pump. There is no material in the tank so be careful not to operate pump for more than 15 minutes.

1. Start the RMT engine and run at low idle.
2. Turn the Controller Master switch ON to activate the system.
3. Turn the Mode Selection switch (Figure 3) to OFF.
4. Use the Pump Speed Control on the Rear Controller (Figure 2) to operate the hydrostatic motor, and use the Control Valve to change the FORWARD and REVERSE directions of the asphalt pump. Visually verify that the pump turns in both directions.



**ATTENTION:** Do not run the asphalt pump for more than 15 minutes with no material in the system as seal damage could occur.

#### C. AUTOMATIC VALVE SYSTEM

1. Verify that the air actuators and cylinders are operating properly.
2. Review the plumbing circuit and familiarize yourself with the valve locations.
3. Turn the Mode Selection switch (Figure 3) to TANK CIRCULATE/HANDSPRAY.
4. Have a person at the back of the RMT verify that the circuit valves move into position. The three valves have only two positions, open or closed.

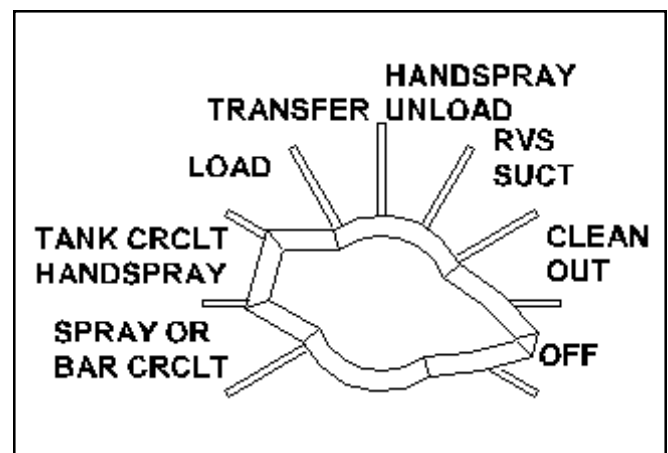


FIGURE 3 - Mode Selection Switch

# OPERATION



FIGURE 1 - Controller

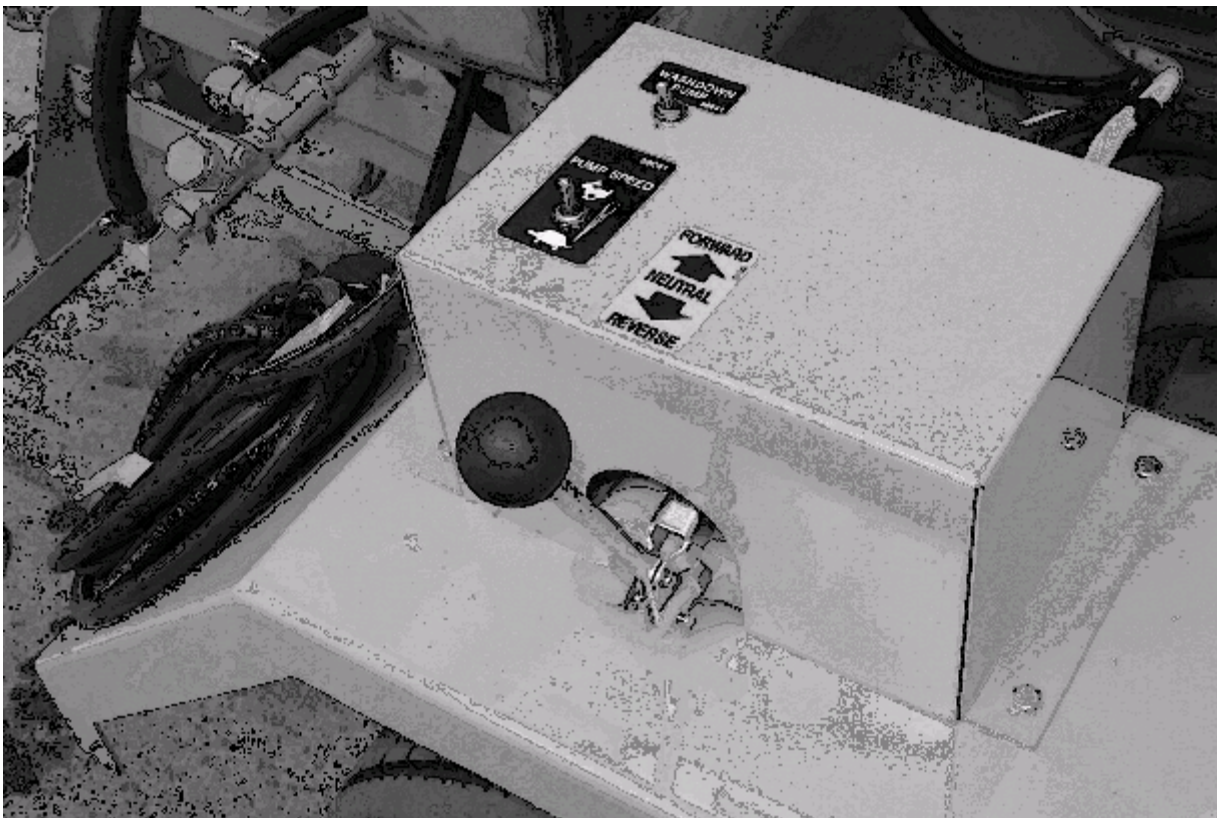


FIGURE 2 - Rear Controller

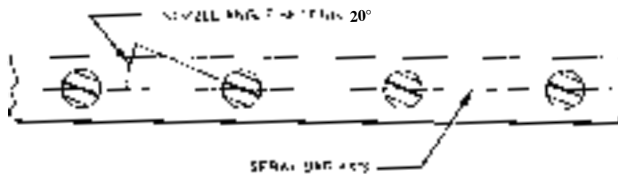
## OPERATION

### 4. ASPHALT SPRAY BAR

The spraybar of the distributor is considered the most important component. It is through the spray bar that the asphalt will be applied to the road surface. For best results, the right size nozzle and proper spray bar height for the type and grade of asphalt and the application rate must be used. Before starting a job be sure to check the nozzles for damage and proper settings.

#### A. SPRAY PATTERN

1. Set the long axis of the nozzle openings to 20 degrees. This setting will give the best coverage without interference with the spray pattern.
2. Check the angle using the nozzle wrench provided with your unit. Refer to page 3.8 for adjustment procedures.



#### B. SPRAY BAR HEIGHT

1. Set the spray bar height to provide exact triple coverage of the spray fans. Usually this coverage is found when the bar is set 9 to 11 inches (23 to 28 cm) above the ground.

**NOTE:** Different weights of material require slightly different heights. Generally, lighter weight materials should be sprayed at closer to the 9 inch height, while heavier weight material will need to be sprayed at closer to the 11 inch height. (See diagram)

2. Measure from the **bottom of the nozzle** to the ground to set the height as the nozzle extends below the bar. The operator will have to try spraying to see which height gives the best coverage.

**NOTE:** Be sure that the spray bar height is set properly to obtain a uniform asphalt spread. It is also important to maintain the correct height during the spraying procedure.

3. Once the best spray bar height has been determined, set the support chains by locking into the slot so that there is no more than 13 mm ( $\frac{1}{2}$  inch) variance during the spraying operation.
4. Mark the link of the chain that gives the proper height for a job so there is no need to recount the chain links each day. If the bar is improperly set, streaking or wind distortion of the spray fans may occur.

**NOTE:** Although there is rarely a difference in fan patterns as the truck load lightens, if you notice a change in the pattern, you may need to readjust the height of the bar.



# OPERATION

## 5. VALVE AND NOZZLE

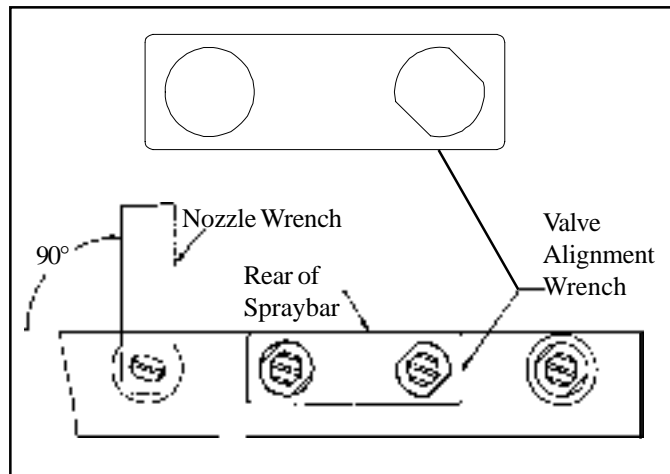
### A. ADJUSTMENT

When changing or adjusting valves or nozzles, ROSCO has made it easy to achieve accurate positioning with two simple tools provided with the unit.

1. Use the valve alignment wrench to be sure that the valves are in proper alignment. To use this tool, simply lay the round slot of the tool over the bottom of one valve and align the other valve with the oblong slot. Repeat for any valves that are being replaced or realigned. This will insure that the valve is aligned for proper operation.
2. To adjust the nozzles, lay the nozzle wrench over a single nozzle and turn the wrench until the nozzle wrench is at a 90° angle with the rear of the spray bar. This will give the nozzle the proper 20° angle for spraying without interference with the other nozzles.



**ATTENTION:** Do not overtighten nozzles. Constant overtightening will cause the threads inside the valve to wear, requiring replacement of the outer body of the valve.



### B. NOZZLE SELECTION

The correct nozzle selection depends on:

1. the application rate
2. the truck speed
3. the type of material that is being sprayed.

The operator should use the ROSCO nozzle wrench and valve alignment wrench to adjust the spraying angle of the nozzles. The recommended working angle of each nozzle is 20 degrees.

**NOTE:** Exceeding nozzle maximum flow rate may cause fogging. Using a nozzle that is too large will cause a poor spray pattern. For additional information about nozzle selection and adjustment see **Section II** and **Section IV**.

NOZZLE SIZE	RECOMMENDED FLOW RATE-GPM PER NOZZLE	APPLICATION RATE GAL/ SQ YD
00	1.2	.03 - .08
0	3.0	.05 - .20
1	4.0	.10 - .30
1.5	6.0	.15 - .40
2	8.5	.25 - .55
3	13.5	.35 - 1.0

NOZZLE SIZE	APPLICATION RATES
00	Extremely light application rates
0	Light application rates
1	General application rates
1.5	Intermediate rates with certain emulsions
2	Heavy applications

# **OPERATION**

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The rest of this section will take you through the different modes of the RMT Asphalt Distributer. Each function is explained in step by step detail and includes safety concerns that the operator must be aware of when operating the unit.

With each mode, there are illustrations to show the proper mode control selection and the path of travel of the asphalt flow in the system. The flow illustration also shows the proper orientation of the valves throughout the system. The illustrations may also be used to help in troubleshooting the unit if a certain mode does not operate properly.

When operating the unit for the first time, be sure to read each mode section carefully before operating in that mode and keep the book handy for reference during each mode operation. If you are unsure how to perform a function with the unit, reread the instruction or seek the help of trained, experienced personnel.

# OPERATION

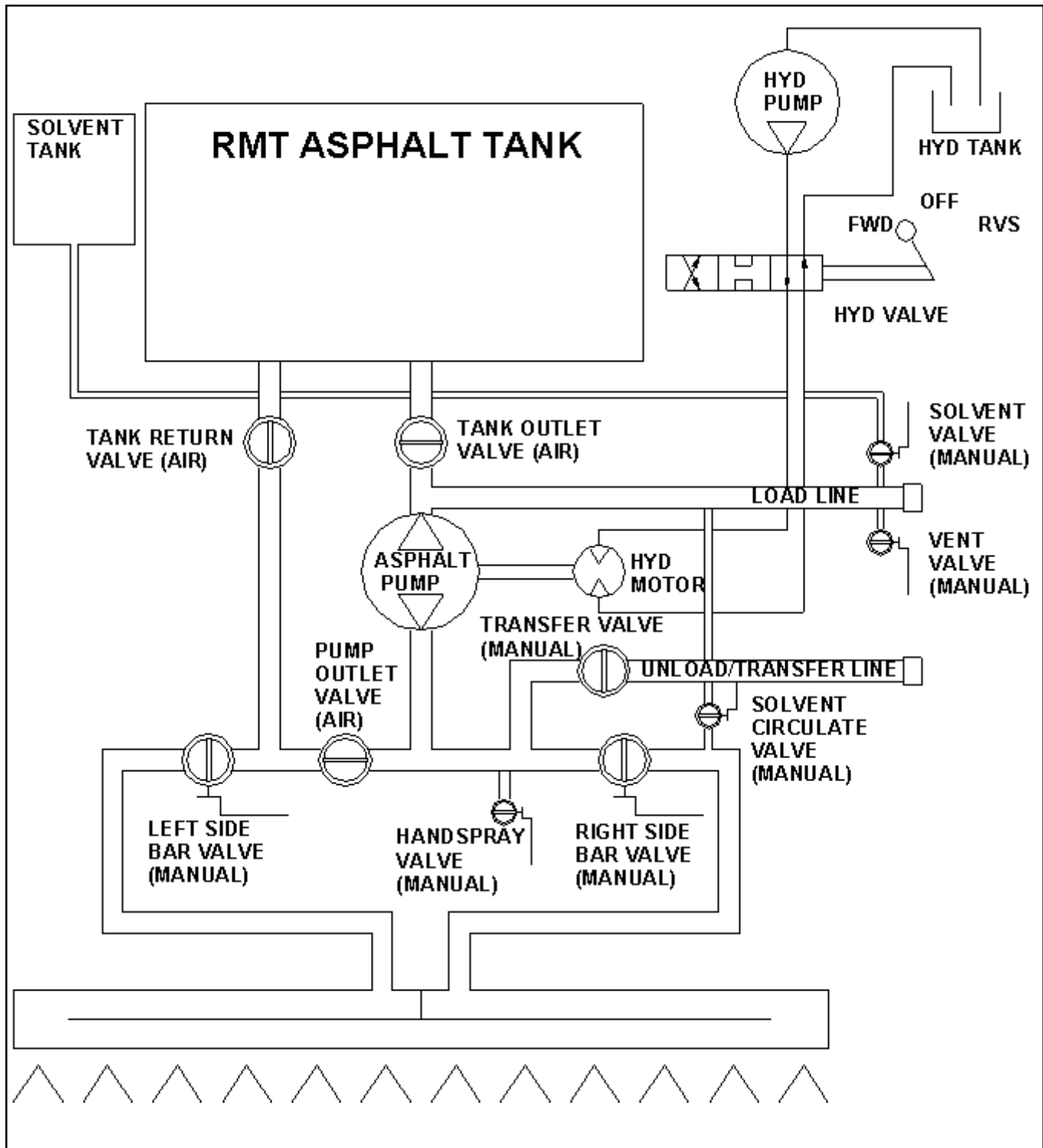


FIGURE 4 - Loading Mode

# OPERATION

## 6. OPERATION

### A. LOADING MODES

#### 1. BOTTOM TANK LOADING

Review and follow pre-operation check list before starting.



**DANGER:** *DO NOT SMOKE* around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.



**DANGER:** *Hot material will turn water into steam and can cause an explosion.*

- a. Be sure the unit is sitting on a level area. With a flash light, look into the tank from the top and check that there is no water or condensation in the bottom of the tank. If there is, remove water to an approved container before loading and dispose of material and water according to local, state and federal regulations.

**DANGER:** *Check that the material being loaded is compatible with the previously used asphalt. See material section in this manual. Some asphalt material can be vaporized by high temperature materials and cause an explosion. If material is not compatible, clean tank.*



- b. Move the RMT to the storage tank or to the transfer vehicle.

**DANGER:** *Never operate burner equipment when the vehicle is being loaded, is in transit or while spraying asphalt. The flue tubes could be exposed, causing an explosion inside the tank, or the material being sprayed could ignite.*



- c. Start the engine.
- d. Set all manual valves on the rear of the machine to OFF.

- e. Turn Controller Master switch ON. Set the Mode Selection switch to LOAD and set the Spraybar Master switch to BAR CIRCULATE..



**CAUTION:** *Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.*

- f. Use the Rear Controller and **be sure** to set the asphalt pump direction Control Valve (Figure 5) FORWARD and set the pump speed control to provide suction to the line at 50 to 75 GPM.

**WARNING:** *Never remove the load line cap unless the pump is turning in the forward position and the vent valve is open. Hot asphalt in the load line is under pressure and could spray the operator if proper procedure is not followed. Check the direction by opening the vent valve.*



- g. Slowly open the small vent valve to the top left of the load line coupler (Figure 6) to relieve the vacuum in the line. When suction relief is heard remove the cap. **If no relief is heard, do not remove cap.**

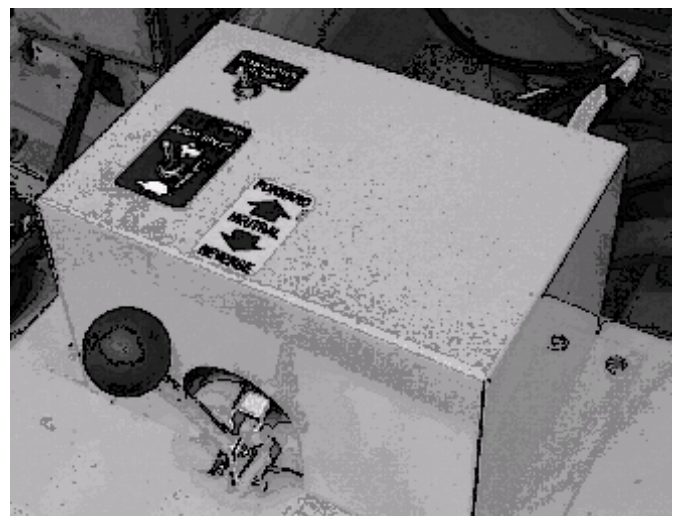
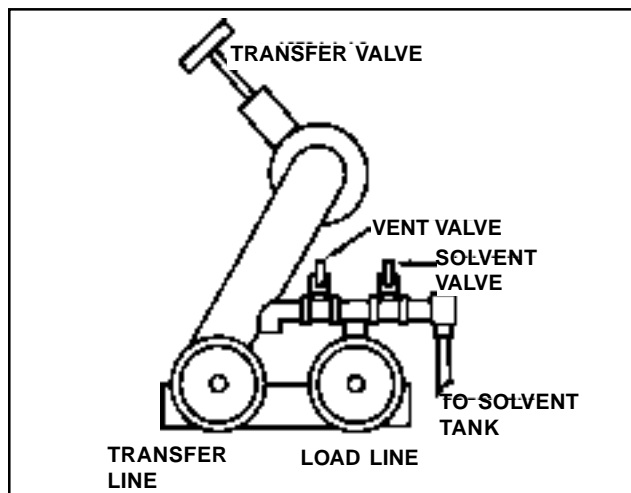


FIGURE 5 - Rear Controller

# OPERATION



**FIGURE 6 - Load Line & Transfer Line**

- h. After removing the load line cap, close the vent. Connect the loading hose. Be sure the over-center latches lock the coupler in place.
- i. Increase the output to provide 50 to 150 GPM.
- j. Fill until the tank is 80% to 90% full.
- k. When the tank is filled, slow the pump speed so that the pump just provides suction to the line. (50-75 GPM)
- l. Close the valve at the storage or transfer tank to stop the flow.
- m. Open the small vent on the top left of the load line to allow the pump to draw material out of the load line.
- n. Disconnect the loading hose, replace the cap, secure latches, close the small vent valve and stow the loading hose.



**CAUTION:** *Some residue will remain in line. Beware of hot asphalt. Wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.*

- o. Using the asphalt pump Direction Control Valve, stop the pump.

- p. Set the Mode Selection switch to TANK CIRCULATE.

## 2. TOP TANK LOADING

Review and follow pre-operation check list before starting.

**DANGER:** *DO NOT SMOKE* around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.



**WARNING:** *Do not put your head in the tank. Serious injury or death could result from breathing poisonous fumes.*



**DANGER:** *Hot material will turn water into steam and can cause an explosion.*



- a. Be sure the unit is sitting on a level area. With a flash light, look into the tank from the top and check that there is no water or condensation in the bottom of the tank. If there is, remove water to an approved container before loading, and dispose of material and water according to local, state and federal regulations.

**DANGER:** *Check that the material being loaded is compatible with the previously used asphalt. Some asphalt material can be vaporized by high temperature materials and cause an explosion. If material is not compatible, clean out the tank.*



- b. Move the RMT to the storage tank or the transfer vehicle.

**DANGER:** *Never operate burner equipment when the vehicle is being loaded, is in transit or while spraying asphalt. The flue tubes could be exposed causing an explosion inside the tank, or the material being sprayed could ignite.*



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## OPERATION

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- c. Set all manual valves on the rear of the machine to OFF.
- d. Set the Mode Selection switch to OFF and turn the RMT engine OFF.



**CAUTION:** *Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.*



**WARNING:** *Fumes from asphalt materials can be poisonous. When using the top opening, the operator should stand up wind and to one side to avoid hot gases, fumes or being struck by a cover or hot asphalt spray.*

- e. Carry the loading hose to the top of the tank and open the Top Opening cover.
- f. Clean the strainer in the Top Opening cover before loading.
- g. Lay the end of the hose in the strainer and start the pump on the storage tank or transfer vehicle to load the tank. Be sure that the hose stays in the Top Opening. It may be necessary to hold it or tie it to the lid hinges or platform to keep it in place.
- h. Fill until the tank is 80% to 90% full.
- i. Reverse the storage tank pump to draw excess material out of the loading hose.
- j. Remove the hose from the Top Opening and close the cover.



**CAUTION:** *Some residue will remain in line. Beware of hot asphalt. Wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.*

- k. Remove the hose from the storage tank and stow as appropriate.

# OPERATION

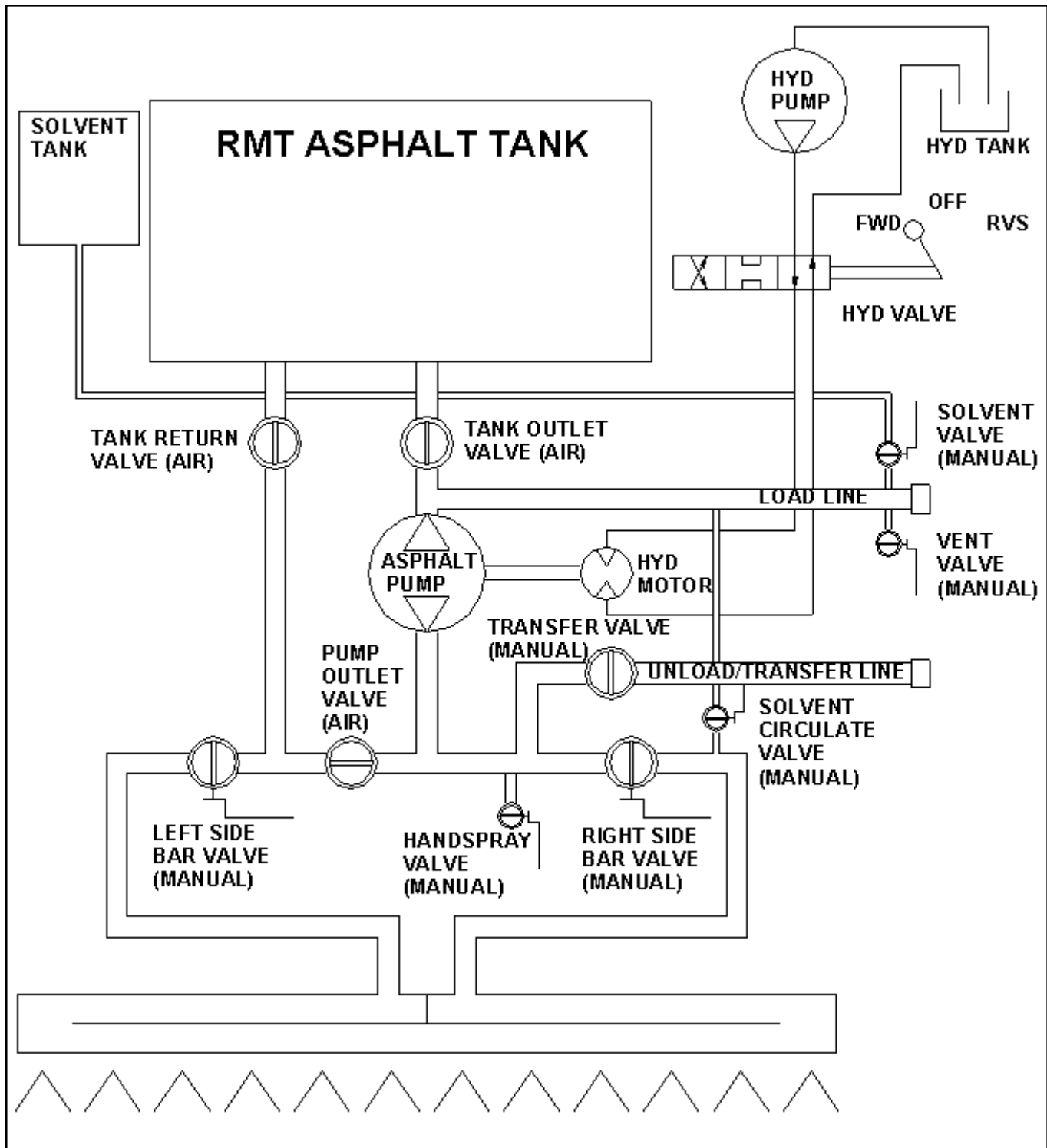


FIGURE 7 - Tank Circulate Mode

## OPERATION

### B. TANK CIRCULATE MODE (Tank Crclt)

When heating and transporting, run the RMT in TANK CIRCULATE mode in order to mix and distribute the material in the tank and to minimize the loss of heat from the plumbing.



**WARNING:** *Never operate burner equipment when the vehicle is being loaded, is in transit or while spraying asphalt. The flue tubes could be exposed causing an explosion inside the tank, or the material being sprayed could ignite.*

1. Start the engine.
2. Set all manual valves on the rear of the machine to OFF.
3. Set the Mode Selection switch to TANK CIRCULATE.
4. Use the Rear Controller and set the asphalt pump direction Control Valve to FORWARD.
5. Using either of the pump speed controls, set the pump speed at 50 to 75 GPM to circulate asphalt.

### C. SPRAYBAR AND WINGS

1. Move the RMT to the work site and position it for spraying.
2. Determine how wide an area you need to spray and adjust the spray bar and the wing folds accordingly.
3. Set the spray bar.
4. Set the support chains to hold the spray bar at its working height, normally 9 to 11 inches (23 to 28 cm) above the surface. See "**The Asphalt Spray Bar**", page 3.7 for more information about setting the spray bar.

### D. NOZZLE SELECTION

Exceeding nozzle maximum flow rate may cause fogging. Using a nozzle that is too large will cause a poor spray pattern. For additional information about nozzle selection and adjustment see "**Nozzle Selection**", page 3.8.

### E. BURNER OPERATION

If your unit is equipped with dual diesel burners you will have separate controls for each burner (Figure 8). This allows the operator to run one or both of the burners to heat the material. Light the upper burner using the same steps as the lower burner.

#### 1. DIESEL BURNERS

Control switches for the electronic ignited diesel burners are mounted on the left rear fender. (Figure 8)

- a. **Fuel Switch:** Activates burner fuel solenoid and ignites burner. Turn OFF to extinguish burner.
- b. **Blower Switch:** Activates blower and fuel pump. Turn fuel switch ON to ignite burner.



**FIGURE 8 - Diesel Burners**  
(Dual burner configuration shown)

# OPERATION

## 2. DIESEL BURNER IGNITION



**CAUTION:** Before heating asphalt material, refer to **Burner System** (pages 2 & 3 of this section) for further information and precautions.



**DANGER:** DO NOT SMOKE around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.



**WARNING:** Do not put your head in the tank. Serious injury or death could result from breathing poisonous fumes.



**DANGER:** Hot material will turn water into steam and can cause an explosion.

- a. Before lighting the burner, be sure the unit is sitting on a level area.
- b. Be sure that flue tubes are covered by at least 8 inches of material. Read the tank dipstick and if the amount in the tank is less than the recommended amount in the chart on page 3.18, **do not use the burners**. Using the burners without enough material in the tank will damage the flue tubes and could cause an explosion.



**DANGER:** Never operate the burners if the flue tubes are not covered with at least 8" of material. The flue tubes can become red hot and ignite the vapors causing an explosion.

- c. Start and run the RMT engine between 2/3 and full throttle. Set asphalt pump speed at approximately 60 GPM. This provides power to the asphalt pump.
- d. Do not load, unload, transport or spray while burners are operating.
- e. Set Mode Selection switch to TANK CIRCULATE (See page 3.15 for Tank Circulate instructions).



**WARNING:** Operating the burners without circulating the product can create explosive fumes. If the product **can not** be circulated after **10 minutes** of heating, turn the burners off. **Do not** try to heat material again for 30 minutes.

- f. Turn the key switch on the engine Controller and the fuel and blower switches on the fender controls OFF.
- g. Set the oil temperature on the fender Controller to required temperature for the oil being used.
- h. Turn the Master switch on the Controller ON.
- i. Set asphalt pump direction Control Valve to the FORWARD position at a flow of 75 to 100 GPM.
- j. Turn the lower flue blower switch on the fender controls ON. Wait 1 to 2 minutes before proceeding to next step.
- k. Turn the lower flue fuel switch on the fender controls ON.

**Note:** The burner should light. If it does not start immediately, **shut off fuel**, run blower to clear fuel from flue and then retry in 1-2 minutes.



**CAUTION:** If the fuel is not cleared from the flue, the fuel may backfire through the burner when the operator tries to relight it. This could cause burns to the operator.

**High Temperature Limit Control:** The advantage of this feature is the burners will automatically shut off when the set high temperature limit is reached. The burners will not restart until the key switch on the engine Controller is shut OFF to reset the control. However, until the material cools to less than the thermostat set temperature, the burners will not relight. This feature helps to prevent overheating of the tank material.

# OPERATION

**CAUTION:** *DO NOT leave the unit while heating. Operator must monitor the controller display temperature as well as the dial or pencil thermometer to insure that all equipment is functioning properly and that the material does not heat beyond the required spraying temperature.*



### 3. DIESEL BURNER EXTINGUISHING

- a. Turn burner fuel switch(s) on the fender controls OFF.
- b. Wait 3-5 minutes to allow the blower to cool the flue and the burner, then turn blower switch(s) on the fender controls OFF.
- c. Turn OFF the Master switch on the Controller.
- d. Wait 5 minutes before relighting burners.

### 4. LPG BURNERS

Before operating the propane burner system become familiar with the position, function and operation of each control in the system. (Figure 9 & 10)

- a. **Regulator Valve:** This valve is used to set the pressure at the regulator valve. Turn counterclockwise to open the valve and set the pressure. Turn clockwise to reduce or close the valve. Always set the pressure at 10 to 20 PSI for operation.
- b. **Pilot Light Valve (on manual ignition only):** Controls the operation of the burner pilot light. Turn counterclockwise to allow full flow after the burners are ignited. Turn clockwise to close the valve when lighting the pilot light.
- c. **Shut-Off Valve:** Controls the flow of fuel to the burner. Turn counterclockwise to open the valve to provide gas to the burner. Turn clockwise to close the valve and extinguish the burner.

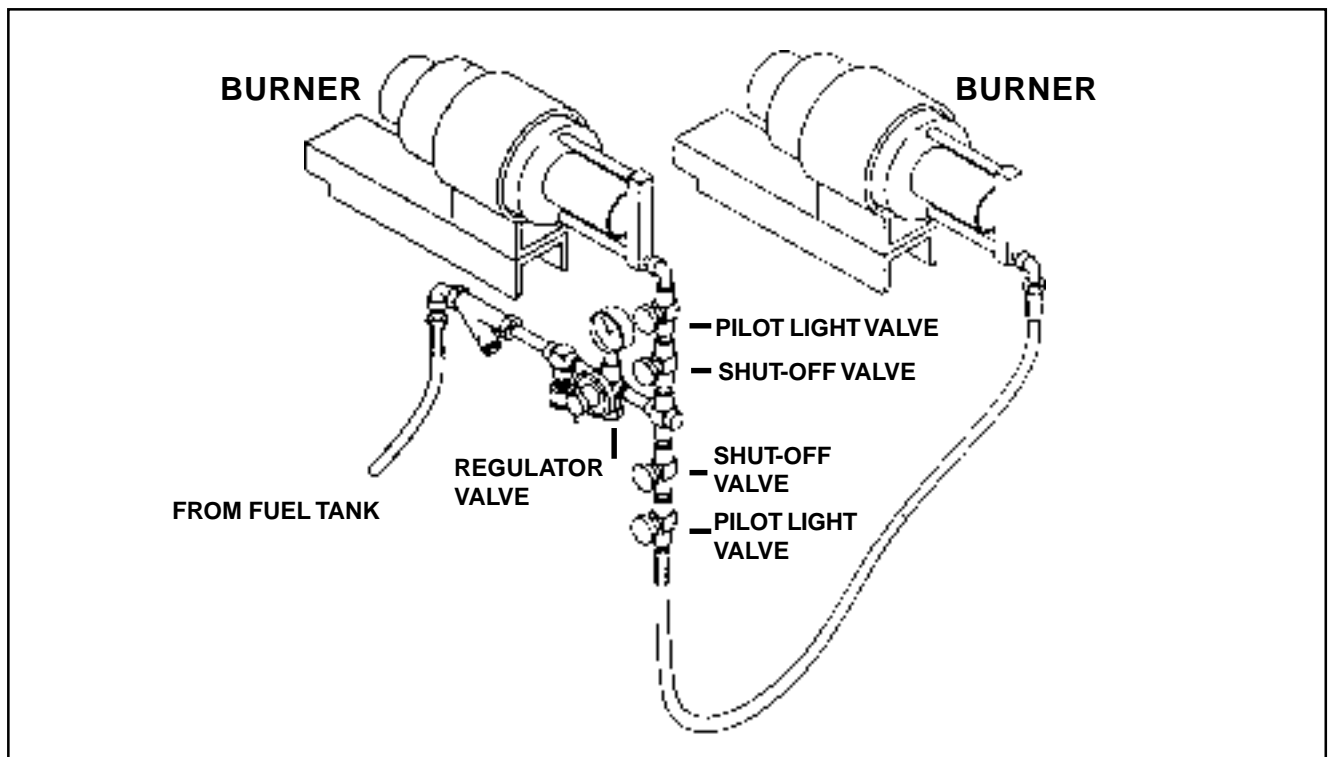


FIGURE 9 - LPG Burner System (Manual Ignition)

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## OPERATION

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<b>Tank Contents Chart to Insure Flue Tube Coverage</b>		
Tank Size	Amount w/One Flue	Amount w/Two Flues
1000 - 1100 gal 3785 - 4164 L	500 gal 1893 L	700 gal 2650 L
1250 - 1350 gal 4732 - 5110 L	600 gal 2271 L	900 gal 3407 L
1500 - 1600 gal 5678 - 6057 L	650 gal 2461 L	1000 gal 3785 L
1750 - 1850 gal (10 ft tank) 6625 - 7003 L (304 cm tank)	650 gal 2461 L	1000 gal 3785 L
1750 - 1850 gal (14 ft tank) 6625 - 7003 L (427 cm tank)	750 gal 2839 L	1150 gal 4353 L
1950 - 2000 gal 7382 - 7571 L	750 gal 2839 L	1150 gal 4353 L
2500 - 2600 gal 9464 - 9842 L	900 gal 3407 L	1450 gal 5489 L
3000 - 3100 gal 11,356 - 11,375 L	1000 gal 3785 L	1600 gal 6057 L
3500 - 3600 gal 13,249 - 13,627 L	1000 gal 3785 L	1600 gal 6057 L
4000 - 4100 gal 15,142 - 15,520 L	1150 gal 4353 L	1800 gal 6814 L

# OPERATION

d. **Solenoid:** (Not Shown) Shuts off fuel to burners when high temperature is reached.

e. **Tank Valve:** (Not Shown) Controls the flow of the fuel from the tank. Turn counterclockwise to open and clockwise to close.



**WARNING:** Do not put your head in the tank. Serious injury or death could result from breathing poisonous fumes.



**DANGER:** Hot material will turn water into steam and can cause an explosion.

## 5. LPG BURNER IGNITION - MANUAL



**CAUTION:** Before heating asphalt material, refer to **Burner System** (pages 2 & 3 of this section) for further information and precautions.



**DANGER:** DO NOT SMOKE around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.

- a. Before lighting the burners be sure the unit is sitting on a level area.
- b. Be sure that flue tubes are covered by at least 8 inches of material. Read the tank dipstick and if the amount in the tank is less than the recommended amount in the chart on page 3.18, **do not use the burners**. Using the burners without enough material in the tank will cause damage to the flue tubes and could cause an explosion.

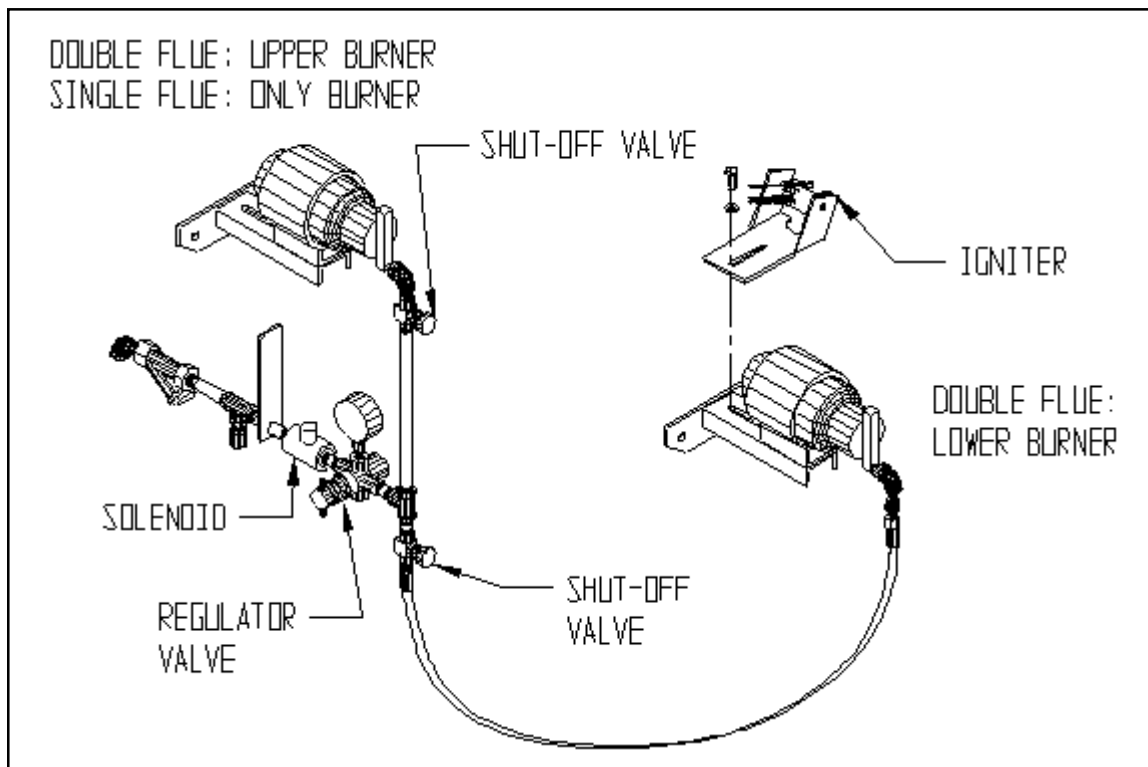


FIGURE 10 - LPG Burner System (Auto Ignition)

# OPERATION



**DANGER:** *Never operate the burners if the flue tubes are not covered with at least 8" of material. The flue tubes can become red hot and ignite the vapors causing an explosion.*

- c. Do not load, unload, transport or spray while burners are operating.
- d. Set Mode Selection switch to TANK CIRCULATE (See page 3.15 for instructions).



**WARNING:** *Operating the burners without circulating the product can create explosive fumes. If the product **can not** be circulated after **10 minutes** of heating, the burners must be turned off. **Do not** try to heat material again for 30 minutes.*

- e. Close Pilot and Shut-Off valves.
- f. Turn the Master switch on the Controller to OFF.
- g. Set oil temperature on fender control box to the required temperature for the oil being used.
- h. Turn Master switch on Controller ON.
- i. Open the LPG tank valve to start the flow of propane.
- j. Open the Shut-Off valve to the lower burner a little to allow a small amount of fuel to flow to the burner.
- k. Light the pilot light on the lower burner using a wick type torch.



**CAUTION:** *To prevent injury, use a wick type torch to light pilot flame and burner rather than a match or lighter.*

- l. When the pilot flame is lit, open the Shut-Off valve completely. The Pilot valve contains an orifice that will allow sufficient fuel through to maintain the pilot light.

- m. Open the Pilot valve to supply fuel to operate the burner.
- n. Repeat procedure for the upper burner.
- o. Use the Regulator valve to set the fuel pressure at 10 to 20 PSI.

## 6. LPG BURNER EXTINGUISHING - MANUAL

- a. Close the tank valve and allow the fuel to flow to the burners until they go out.
- b. Close the Pilot and Shut-Off valves in the lines.
- c. Wait 5 minutes before relighting to insure there are no left over fumes in the flue.

## 7. LPG BURNER IGNITION - AUTO



**CAUTION:** *Before heating asphalt material, refer to **Burner System** (pages 3 & 4 of this section) for further information and precautions.*



**DANGER:** *DO NOT SMOKE around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.*



**WARNING:** *Do not put your head in the tank. Serious injury or death could result from breathing poisonous fumes.*



**DANGER:** *Hot material will turn water into steam and can cause an explosion.*

- a. Before lighting the burners be sure the unit is sitting on a level area.
- b. Be sure that flue tubes are covered by at least 8 inches of material. Read the tank dipstick and if the amount in the tank is less than the recommended amount

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## OPERATION

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in the chart on page 3.18, **do not use the burners**. Using the burners without enough material in the tank will cause damage to the flue tubes and could cause an explosion.



**DANGER:** *Never operate the burners if the flue tubes are not covered with at least 8" of material. The flue tubes can become red hot and ignite the vapors causing an explosion.*

- c. Do not load, unload, transport or spray while burners are operating.
- d. Start and run engine at 1000 to 1200 RPM (if equipped, engage PTO). This provides power to the asphalt pump.
- e. Set Mode Selector switch to TANK CRCLT (See page 3.15 for instructions).
- f. Set asphalt pump to flow 75 to 100 GPM.



**WARNING:** *Operating the burners without circulating the product can create explosive fumes. If the product **can not** be circulated after **10 minutes** of heating, the burners must be turned off. **Do not** try to heat material again for 30 minutes.*

- g. Verify that burner switch on fender control box is OFF.
- h. Turn the Master switch on the Controller to OFF.
- i. Set oil temperature on the fender control box to the required temperature for the oil being used.
- j. Turn Master switch on the Controller to ON.
- k. Open the LPG tank valve to start the flow of propane.
- l. Partially open lower burner valve for starting.

- m. Turn ON burner switch on fender control box. Burner should light within 10 seconds. If not, turn switch OFF to reset and retry.
- n. Fully open lower burner valve after burner is lit. Open valve for upper burner if equipped.
- o. Burners should be operating. If not, turn valves OFF and troubleshoot.

**High Temperature Limit Control:** The advantage of this feature is the burners will automatically shut off when the set high temperature limit is reached. The burners will not restart until the Master switch on the Controller is shut OFF to reset the control. However, until the material cools to less than the thermostat set temperature, the burners will not relight. This feature helps to prevent overheating of the tank material.

### 8. LPG BURNER EXTINGUISHING - AUTO

- a. Close tank valve to allow LPG to burn out of lines. After burner goes out, close all valves in LPG lines.
- b. Turn OFF burner switch on fender control box.
- c. Turn Master switch on the Controller to OFF.
- d. Wait 5 minutes before relighting burners.

### F. PORTABLE TORCHES

A portable torch may be supplied on the RMT as an option. If the unit is equipped with LPG burners for tank heating, the portable torch is plumbed into the unit's LPG burner regulator.

If the unit is equipped with diesel fired burners, the portable torch is plumbed into the unit's diesel burner line.

## OPERATION

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**DANGER:** Use extreme caution when operating a portable torch either independently of the RMT or as an integral part of the RMT burner fuel system. Read and be familiar with the torch operating instructions. Any external flame is extremely hazardous around the RMT and can cause fire and explosion. Follow all of the SAFETY precautions provided for Burner operation in this manual!!!



### 1. LPG TORCH LIGHTING

- a. Open valve on LPG tank. If torch has separate regulator, set regulator for no more than 15 PSI.
- b. Open Shut-Off valve on torch with Pilot valve closed. The Pilot valve when closed has an orifice which will allow enough LPG flow to light torch.
- c. Light portable torch with wick torch.

**DANGER:** Using a portable torch is extremely hazardous. Use a sweeping motion when using the torch. Do not direct the flame on one point for an extended period of time. Fire and explosion will occur.



- d. Open Pilot valve on torch to allow enough flow for torch operation.

### 2. LPG TORCH EXTINGUISHING

- a. Close Pilot valve to shut down flame.
- b. Close tank valve to shut off gas supply.
- c. After pilot flame goes out, close shut off valve and store torch.

### 3. DIESEL TORCH LIGHTING

- a. Open the torch oil valve three or four turns.
- b. Wrap a wad of lighted, oil-soaked cotton waste around a rod and hold it or lay it underneath and in front of the torch nozzle.

- c. Open the torch aircock gradually until the torch lights. The torch should light instantly. It is seldom necessary to open the torch aircock more than half way when lighting the torch.
- d. Regulate the flame size and intensity with the aircock and oil valve.

**Normally,** you will find that simply regulating the torch aircock gives the best control of the torch flame. To obtain the hottest flame, the aircock should not be opened more than 3/4 way. Best results are obtained by maintaining the aircock between 1/4 and 3/4 open.

### 4. DIESEL TORCH EXTINGUISHING

- a. Close the torch aircock
- b. Close the torch oil valve.
- c. Store the torch in its appropriate location.

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# OPERATION

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NOTES:

# OPERATION

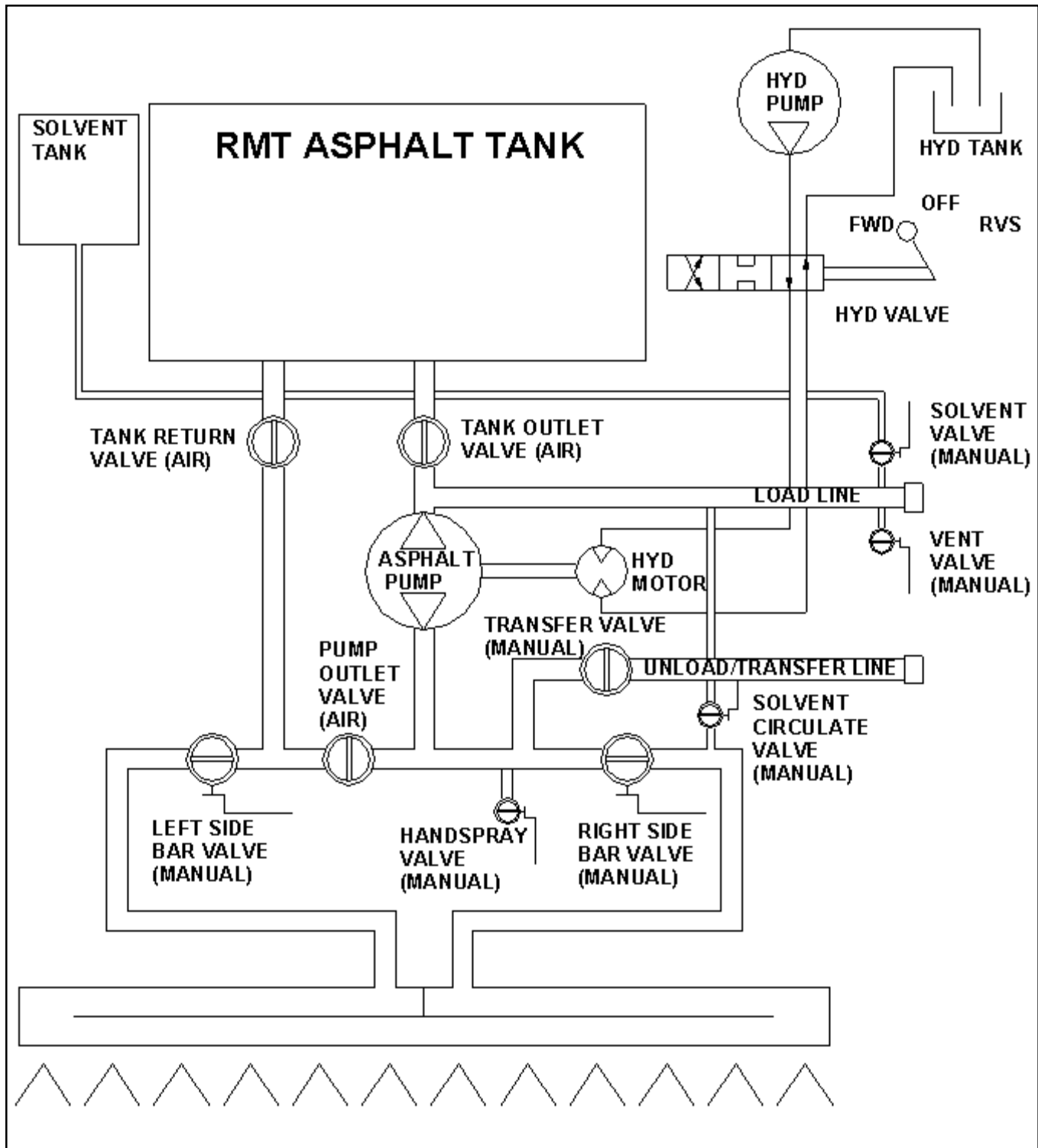


FIGURE 11 - Spray Or Bar Circulate Mode

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## OPERATION

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### G. SPRAY OR BAR CIRCULATE MODE

The Spray Or Bar Circulate Mode circulates the hot asphalt through the spray bar and is used to heat the spray bar and the nozzles prior to spraying. This section covers the position and function of applicable controls. Review these instructions and follow them to insure the safety of the operator and to maintain a safe working environment.

1. Be sure that the material temperature is high enough to prevent setting up in the pump, plumbing and spray bar. If the temperature is at the low end of the operating range, heat the material before starting. (See **Material Selection** information on pages 1.20 - 1.21 and **Burners** on page 3.15 - 3.21.)
2. Set the rear bar valves to OPEN.
3. Turn the Mode Selection switch to the SPRAY OR BAR CIRCULATE mode.



**WARNING:** *Do not open spray nozzles. Asphalt spray will occur. Contact with hot asphalt can cause severe burns.*



**CAUTION:** *Wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.*

4. Turn the Spray/Bar Circulate switch to the BAR CIRCULATE position.
5. Set the asphalt pump direction Control Valve on the Rear Controller to FORWARD.
6. Before starting to spray, run the RMT for at least 5 minutes @ 30 GPM for emulsion, or 75 to 100 GPM for cutbacks, to be sure that the spray bar, nozzles and other components have been warmed up.
7. The unit is ready to spray.

# OPERATION

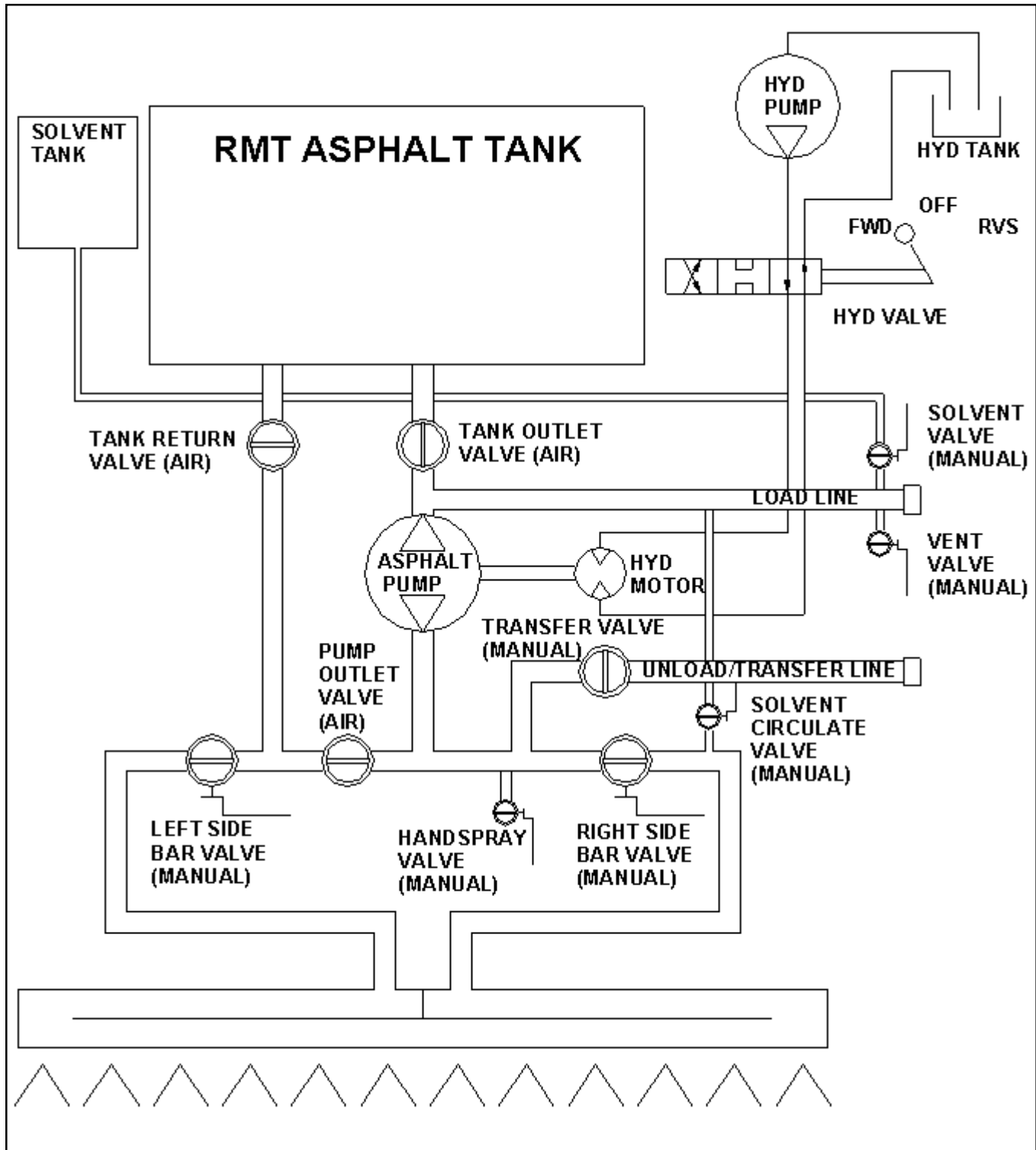


FIGURE 12 - Spray Mode

# OPERATION

## H. SPRAY MODE

This section explains the procedure to be followed when spraying asphalt. It also covers the position and function of applicable controls. Review these instructions and follow them to insure the safety of the operator and to maintain a safe working environment.



**CAUTION:** Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.

### 1. BEFORE SPRAYING

- a. Be sure that the pump speed control has been set to deliver the specified amount of asphalt. Turn on individual spraybar levers on the spray bar for the sections to be used.
- b. Run the RMT in SPRAY OR BAR CIRCULATE for at least 5 minutes to heat the spray bar components to operating temperature.
- c. Check the temperature of the material in the tank. If the temperature is at the low end of the operating range, heat the material before starting. (See **Material Selection** information on pages 1.20 - 1.21 and **Burners** on page 3.15 - 3.21.)
- d. Position the spray bar and wing extensions into their operating configuration.
- e. Set the height of the spray bar to obtain triple fan coverage using the chains to fix the down position. If the day is very windy, use slightly less than triple coverage to avoid wind drift of the asphalt.
- f. Clear the area of bystanders.



**WARNING:** DO NOT SMOKE around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.



*Spray coverages*

### 2. SPRAYING

- a. Align the RMT with the area to be sprayed. Position the RMT so the rear wheels are even with the stop point of the last shot. Do not let the rear wheels get into the fresh oil from the last shot.
- b. As the spray bar crosses the starting point, turn the Spray/Bar Circulate switch to the SPRAY position. The valves for each nozzle will be opened and the spraying will begin.

### 3. AFTER SPRAYING

- a. When the spraying run is finished, turn the Spray/Bar Circulate switch to BAR CIRCULATE. The nozzle valves will close and the spraying will stop.
- b. Refer to the Reverse Suction Mode for instruction on how to draw excess asphalt out of the spray bar and piping when spraying is complete.

**NOTE:** If you want to keep the spray bar components hot, leave the Mode Selection switch in SPRAY OR BAR CIRCULATE.

# OPERATION

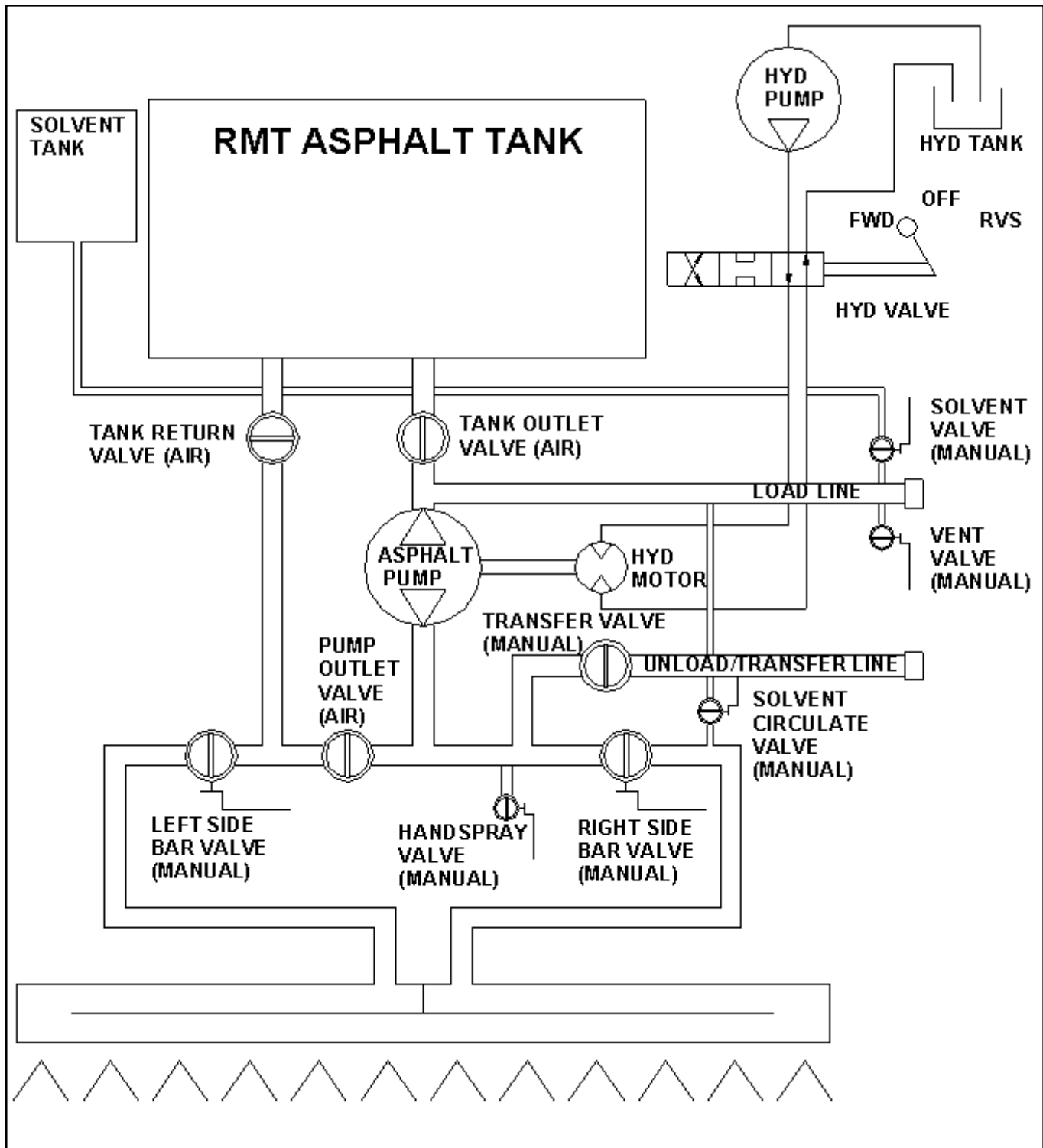


FIGURE 13 - Handspray - Tank Circulate Mode

# OPERATION

## I. HANDSPRAY MODE

This section explains the procedure to be followed when hand spraying asphalt. It also covers the position and function of applicable controls. Review these instructions and follow them to insure the safety of the operator and to maintain a safe working environment.

1. Set all rear bar valves to OFF except for the Hand Spray valve which should be opened after the hand spray is attached.
2. Set the asphalt pump direction Control Valve to FORWARD.



**CAUTION:** Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.



**WARNING:** DO NOT SMOKE around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.

3. Turn the Mode Selection switch to HANDSPRAY UNLOAD.

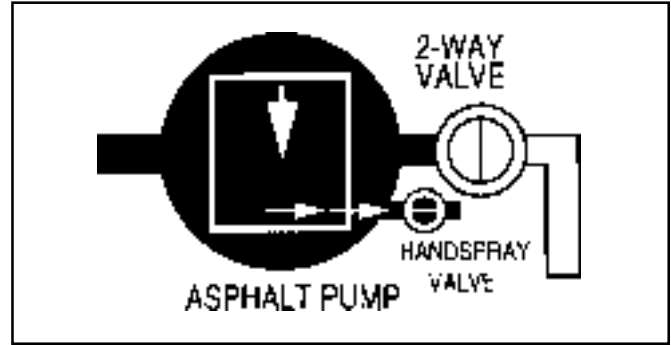


FIGURE 14 - Handspray Valve

**NOTE:** The operator may choose to use the Tank Circulate mode which will allow the use of lower pressure and will allow material to return to the tank while in use. Some operators have found that using the Tank Circulate mode drastically reduces the pump pressure and allows for better control of the Handspray Wand. Tank Circulate mode will also eliminate any setup of material that is still in the pump. If the operator chooses to use the Tank Circulate mode he/she may have to increase the GPM 25 to 50 gallons to get enough pressure to the wand. **Be sure Grip & Spray Valve is closed.**

4. Open the Handspray valve (Figure 14).

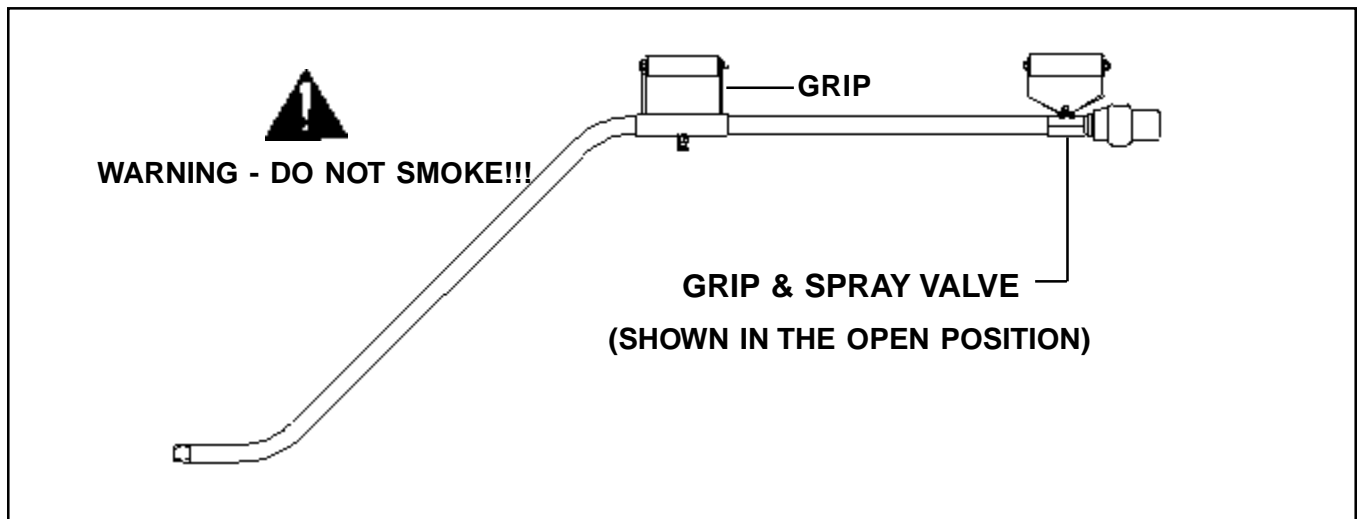


FIGURE 15 - Handspray Wand

## OPERATION

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5. Remove the spray wand and hose from its storage position.
6. Hold the spray wand firmly by the hand grips (Figure 15). The grips are designed to remain cool while the hot asphalt flows through the wand.
7. Be sure that the area is free of bystanders to prevent possible injury from spray or splatter.
8. Be sure that you have a firm grip on the wand. Turn the combination Grip & Spray valve on the wand.
9. Direct the wand to the spraying area. Use long sweeping arcs with the wand to evenly distribute the asphalt.
10. When spraying is complete, set the asphalt pump direction Control Valve to REVERSE and draw the excess asphalt from the spray wand and its hose. Then draw some cleanout solution into the hose to help prevent any material from setting up in the hose during storage.
11. Place the wand back in its storage position.
12. Set the Mode Selection switch to TANK CIRCULATE mode.

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# OPERATION

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NOTES:

# OPERATION

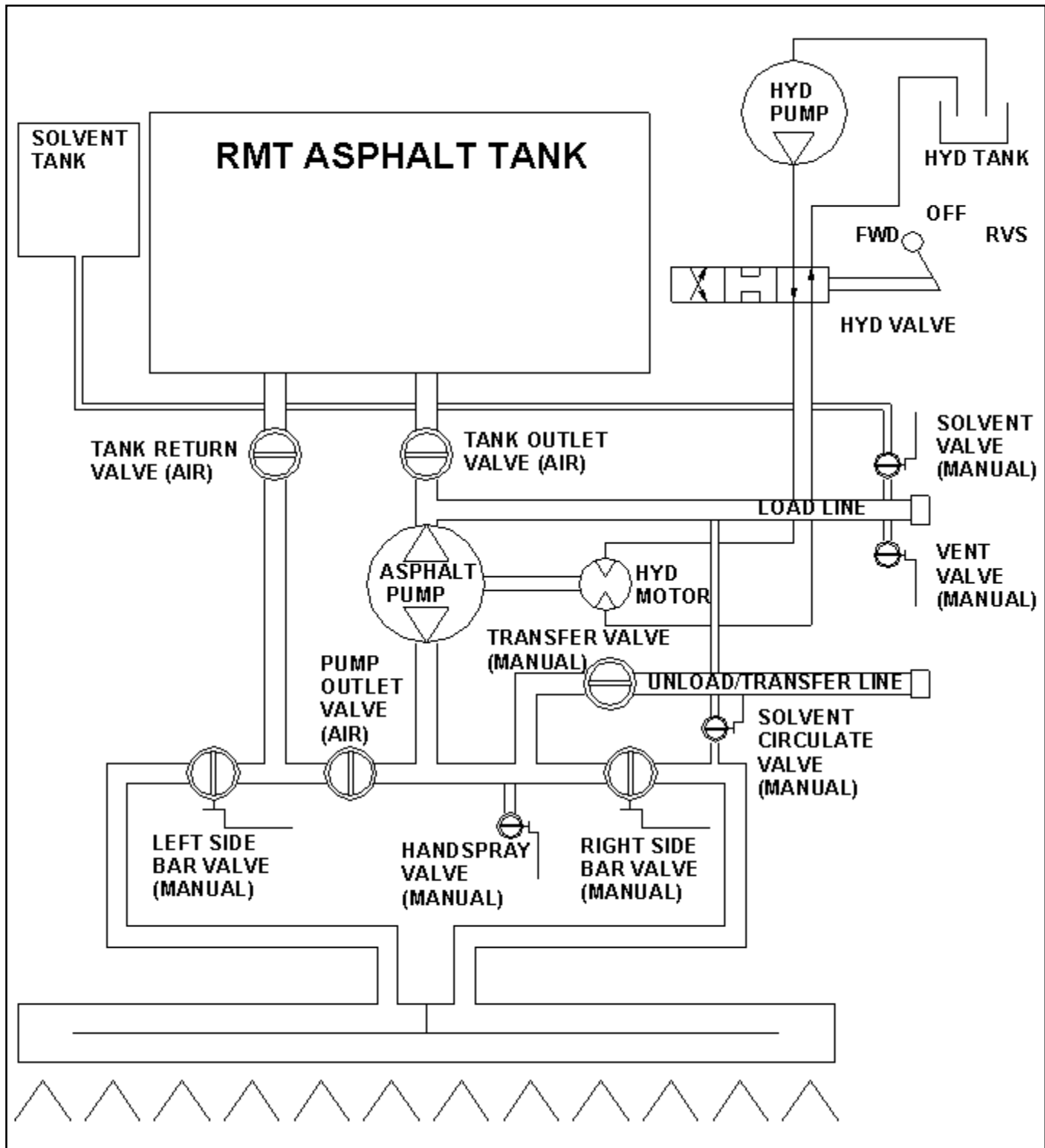


FIGURE 16 - Transfer Mode

## OPERATION

### J. TRANSFER MODE

This section explains the procedure to be followed when the RMT is used to transfer asphalt from one tank to another. This section covers the position and function of applicable controls. Review these instructions and follow them to insure the safety of the operator and to maintain a safe working environment.



**DANGER:** Be sure that the material in both tanks is compatible. If material is not compatible or you are not sure, **do not transfer!** See the **Material** section in this manual for guidelines.

1. Check the temperature of the material in the external tanks. Be sure that it is hot enough to be transferred without setting up in the transfer lines or the pump. If the temperature is marginal or the material is starting to set up, heat the material before starting.



**WARNING:** Heat material **before** moving the unit next to storage tanks. Some asphalt materials emit flammable vapors that can be ignited by the burner flame and cause an explosion.

2. Move the RMT next to the tanks.
3. Close all manual valves on the rear of the machine.
4. Turn the Controller Master switch ON. Turn the Spraybar Master switch to BAR CIRCULATE. Set the Mode Selection switch to TRANSFER.
5. Open Vent Valve to relieve pressure before removing Load Line cap. (**See cautions**).
6. Be sure Transfer valve is closed. Then remove caps at Load Line and Transfer Line. Attach loading hoses between the RMT and the external tank. Use the

over-center clamps to secure the couplers. Be sure to connect the hoses so that material is drawn in through the Load Line and sent out through the Transfer Line.

**WARNING:** Do not open the Transfer Line valve until transfer line is in place. Failure to follow this procedure could result in serious burns to the operator from hot asphalt in the lines. The Transfer Valve must be opened and closed manually.



7. Open the external tank valves and Transfer Line valve.



**CAUTION:** Some residue will remain in the line. Beware of hot material in lines. Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.

8. Set the asphalt pump direction Control Valve on the Rear Controller to FORWARD.

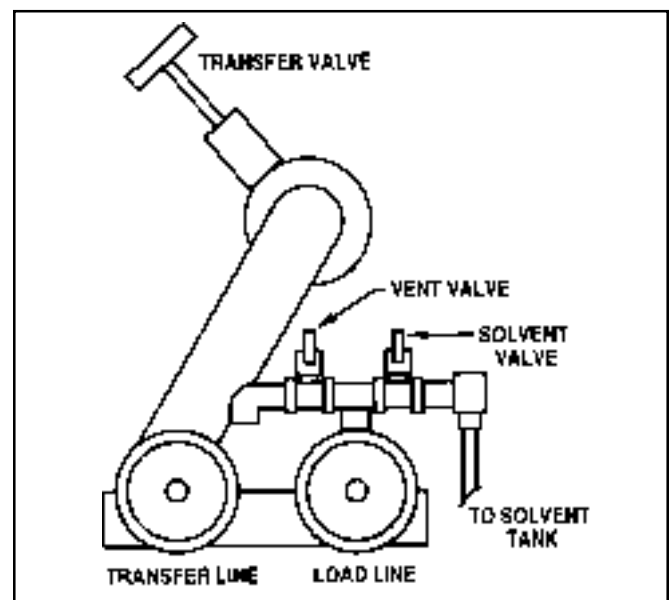


FIGURE 17 - Transfer Line & Load Line

## OPERATION

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**CAUTION:** *Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.*

9. Using either of the pump speed control switches, set the pump speed at 50 to 150 GPM.
10. When the transfer is completed, close the valve at the tank that has had the asphalt drawn out.
11. Run the pump slowly to clean all the material out of the system.



**CAUTION:** *Some residue will remain in the line. Beware of hot material in lines. Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.*

12. Open the Vent Valve at the left of the RMT Load Line.
13. Remove Load Line from tank that had the asphalt drawn out. Install cap on Load Line.
14. When the lines are cleaned out, close the valve on the tank that the material is being pumped into.
15. Stop the pump. To release pressure in system slowly open the Vent Valve on left of Load Line.



**CAUTION:** *Some residue will remain in the line. Beware of hot material. Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.*

16. Close Transfer Line valve. Install and secure Transfer Line and Load Line caps.

17. Remove the loading lines and place in their storage locations.
18. Set the Mode Selection switch to CLEANOUT and proceed per instructions on page 3.43.

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# OPERATION

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NOTES:

# OPERATION

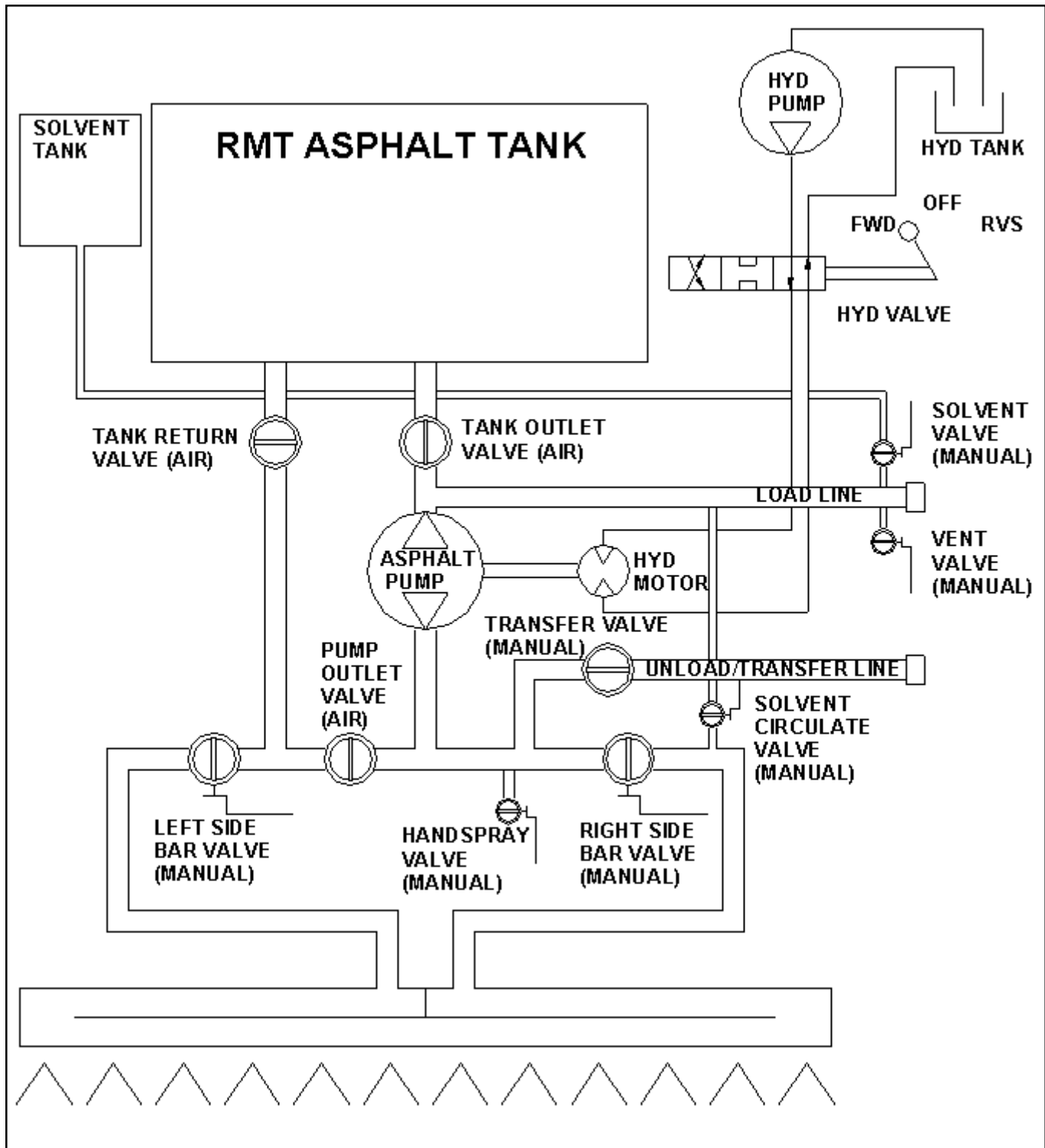


FIGURE 18 - Unload Mode

## OPERATION

### K. UNLOAD MODE

This section explains the procedure to be followed when unloading the RMT of excess asphalt. This section covers the position and function of applicable controls. Review these instructions and follow them to insure the safety of the operator and to maintain a safe working environment.



**DANGER:** Be sure that the material in both tanks is compatible. If material is not compatible or you are not sure, **do not transfer!** See material section in this manual for guidelines.

1. Check the temperature of the material in the tank. Be sure that it is hot enough to be transferred without setting up in the transfer lines or the pump. See **Material** section in this manual for guidelines.

**NOTE:** If the temperature is marginal or material is starting to setup, fill the tank with fresh, hot material to heat it. Turn the Mode Selection switch to TANK CIRCULATE for 5 minutes to mix and heat the remainder before unloading.



**IMPORTANT:** It may be necessary to operate the burners to heat the tank prior to unloading. In this case, be sure that the flue tubes are covered with at least 8 inches of material. (See **Burners** in this section)



**WARNING:** Heat material **before** moving the unit next to storage tanks. Some asphalt materials emit flammable vapors that can be ignited by the burner flame and cause an explosion.



**DANGER:** Never operate burner equipment when the vehicle is being loaded or unloaded. The flue tubes could be exposed causing an explosion inside the tank or the material could ignite causing a fire.

2. Move the RMT to the unloading site.



**WARNING:** Check the storage tank for condensation and if necessary drain before unloading the RMT.

3. Close the Transfer Valve (Figure 19) and remove the Transfer Line cap.
4. Connect the loading hose to the Transfer Line coupler and to the storage tank coupler. Use the over-center latches to secure couplers.

**WARNING:** Do not open the Transfer Line valve until transfer line is in place. Failure to follow this procedure could result in serious burns to the operator from hot asphalt in the lines. The Transfer Valve must be opened and closed manually.



5. Open the valve on the storage tank and the Transfer Line valve.
6. Turn the Controller Master switch ON. Turn Spraybar Master switch to BAR CIRCULATE. Set the Mode Selection switch to HANDSPRAY/UNLOAD.

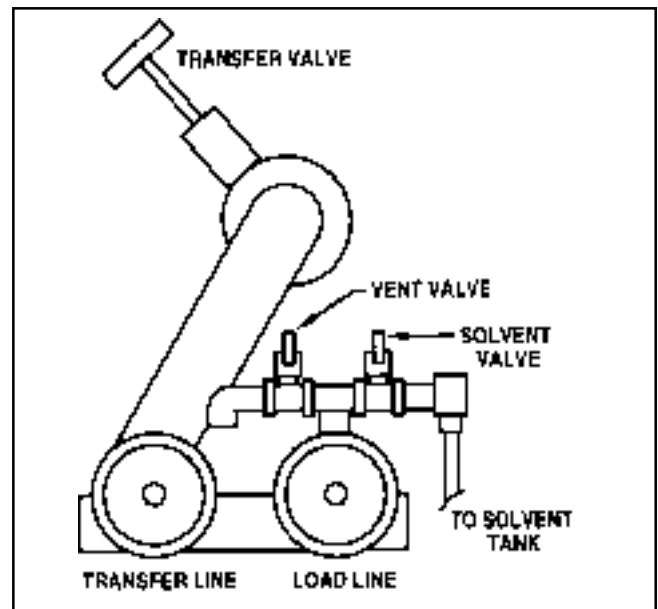


FIGURE 19 - Transfer Line & Load Line

## OPERATION

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7. Move the asphalt pump direction Control Valve to FORWARD.
8. Using one of the pump speed control switches, set the pump speed at 50 to 150 GPM.
9. When the tank is empty, immediately close the valve on the storage tank and stop the pump. Slowly open Vent Valve to relieve the pressure in the line. **A small amount of hot asphalt may run out of Vent Valve when pressure is released.** Close Transfer Valve.
10. Slowly remove unloading hose. Install the cap on the Transfer Line. Secure with the over-center latches.



**CAUTION:** *Some residue will remain in the line. Beware of hot material. Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.*

11. Set the Mode Selection switch to CLEANOUT and proceed per instructions on page 3.43.

# OPERATION

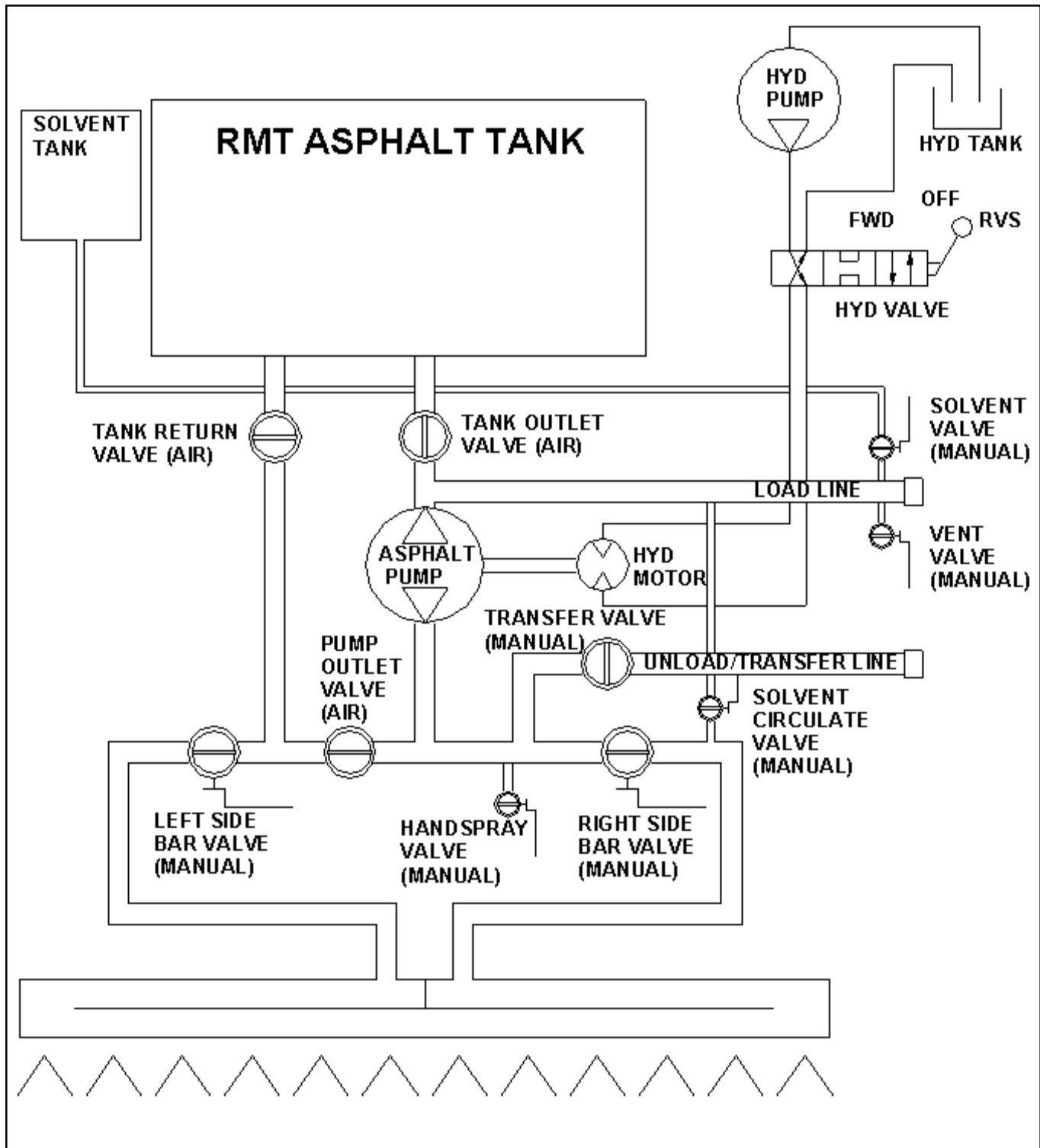


FIGURE 20 - Reverse Suction Mode

## OPERATION

### L. REVERSE SUCTION MODE

This section explains the procedure to be followed when removing the asphalt from the spraybar and plumbing circuit when spraying is complete before starting the cleanout procedure.



**IMPORTANT:** *If the operator fails to perform this function at the end of the day the asphalt will set up over night and the RMT will not be able to spray the next time that it is used.*

It also covers the position and function of applicable controls. Review these instructions and follow them to insure the safety of the operator and to maintain a safe working environment.

1. Open the right and left bar valves.
2. Position the spraybar so that it is parallel to the ground and lift the wing fold.
3. Turn the Controller Master switch ON. Turn the Mode Selection switch to REVERSE SUCTION and turn the Spraybar Master switch to BAR CIRCULATE.
4. Turn the asphalt pump direction Control Valve to the REVERSE position.
5. Using one of the pump speed control switches, set the pump speed at 100 to 125 GPM.
6. Turn on the bar valves for 2 to 5 seconds and then turn off.
7. Turn the Controller Master switch OFF and turn the Mode Selection switch to CLEANOUT.

**IMPORTANT:** *Do not turn off the pump or switch the pump to the forward position. If you switch the rotation of the pump or shut it off before changing the Mode Selection switch to CLEANOUT, all of the material that was removed from the line with the suction will gravity feed back into the line.*

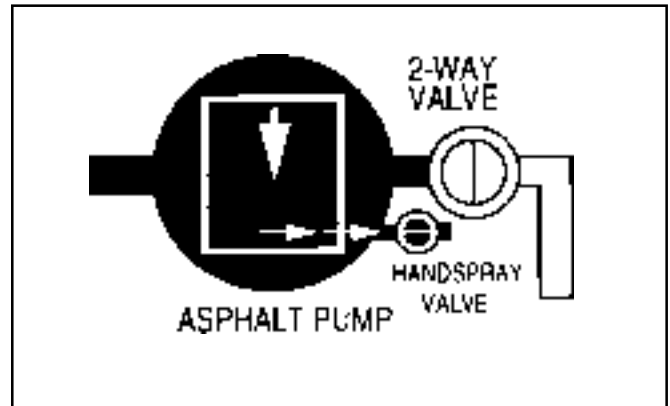


Figure 21 - Handspray Valve

9. If handspray wand was used, open the Handspray Valve (Figure 21) on the pump and keep it open for 30 seconds. Close the Handspray Valve and stow the wand and hose. It may be necessary to draw up some clean out solution into the hand spray hose to remove any oil in the hose and spray nozzle.



**WARNING:** *Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.*



**WARNING:** *DO NOT SMOKE around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.*

# OPERATION

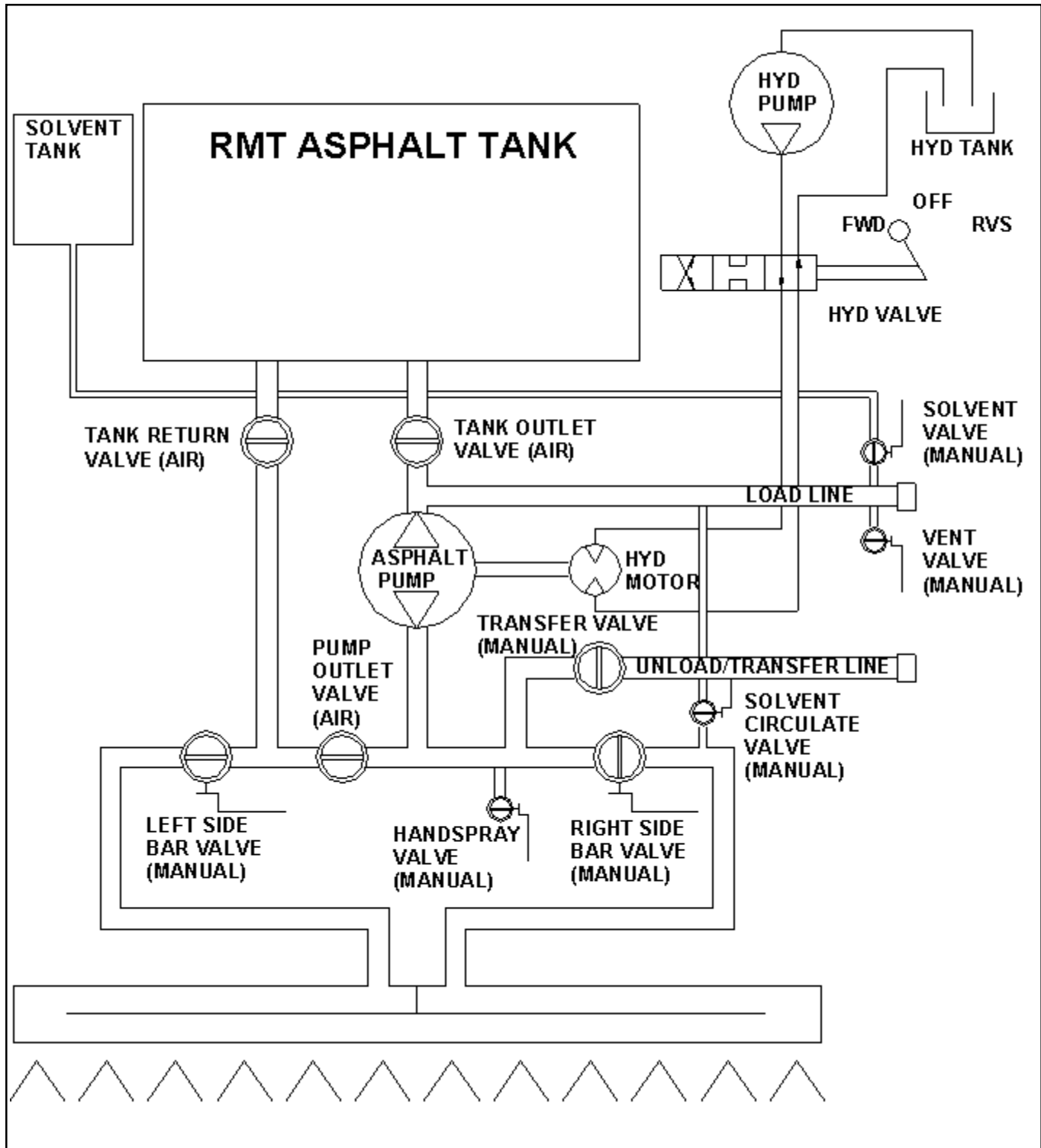


FIGURE 22 - Clean Out Mode

## OPERATION

### M. CLEANOUT MODE

This section explains the procedure to be followed when flushing and washing out the spray bar and plumbing circuit when spraying is complete.



**IMPORTANT:** *If the operator fails to perform this function at the end of the day the asphalt may set up overnight and the RMT will not be able to spray the next time that it is used.*

It also covers the position and function of applicable controls. Review these instructions and follow them to insure the safety of the operator and to maintain a safe working environment.



**WARNING:** *Always use the Reverse Suction Mode to remove excess asphalt from the system prior to going to Cleanout Mode. See Reverse Suction mode.*



**DO NOT** use any citrus solvent, technical name is Terpene Hydrocarbon, to clean out the spraybar. It destroys the Viton seals.



**WARNING:** *DO NOT SMOKE* around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.

1. Check the level of solution in the solvent tank.
2. Set the left rear bar valve to OPEN and right rear bar valve to CLOSED.
3. Turn the Controller Master switch ON and the Mode Selection switch to CLEANOUT. Turn the Spraybar Master switch to BAR CIRCULATE.
4. Turn OFF all the individual spraybar valves and lower both wings.
5. Set the asphalt pump direction Control Valve on the Rear Controller to

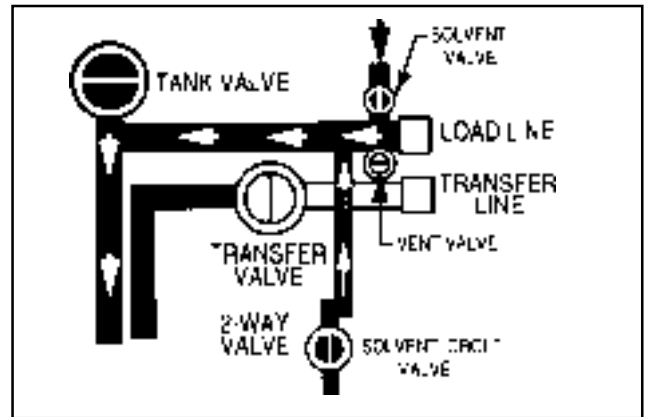


FIGURE 23 - Cleanout Valves

FORWARD, and set the pump speed to provide approximately 50 to 75 GPM.

6. Open the Solvent Valve on the Load Line. (Figure 23) This valve and line connect to the solvent tank or the diesel burner fuel tank.
7. Place a container under the outside most valve on the right side. Manually open the spray valve and watch for solvent to appear. Close the valve.
8. Place a container under the outside most valve on the left side. Manually open the spray valve and watch for solvent to appear. Close the valve.
9. Close the Solvent Valve on the Load Line and open the Solvent Circulate Valve. (Figure 23) Run for 2 - 5 minutes to circulate solvent through the system.

**NOTE:** If handspray wand was used, open the Handspray Valve (Figure 21) . Place a five gallon bucket under the wand to catch solvent. Do not contaminate the environment. Open and close the combination Grip & Spray valve on the handle until a small amount of solvent comes out of the wand. The on/off action will allow the air to come out of the hose and liquefy the asphalt in the wand to keep it from setting up. Close the Handspray Valve. Cover bucket with a snap-on lid to contain cleaning material. Dispose of cleaning material according to local, state and federal regulations.

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## OPERATION

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**CAUTION:** *Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.*



**WARNING:** *DO NOT SMOKE around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.*

10. Move the asphalt pump direction Control Valve to the NEUTRAL position to stop the pump. Turn the Solvent Circulate Valve OFF.
11. Turn off left bar valve. Turn Mode Selection switch to OFF. Turn Controller Master switch OFF. Shut off engine.
12. Leave the Mode Selection switch OFF when the machine will not be used for a period of time, such as overnight or when in storage.



**ATTENTION:** *Always drain solvent from the system before loading additional asphalt and before changing the mode of operation. Failure to do so could damage the system.*

12. To remove solvent from the system, open the left bar valve.
13. Turn Controller Master switch ON and set the Mode Selection switch to CLEANOUT.
14. Place a five gallon bucket under the far right side spray bar valves. Open the valves.
15. Set the asphalt pump direction Control Valve to FORWARD and run the pump at approximately 50 GPM. Open Vent Valve on Load Line and pump the solvent into the container.
16. Stop the pump. Close the spray bar valves and Vent Valve (Figure 23).

17. Cover bucket with a snap-on lid and dispose of cleanout material according to local, state and federal regulations.

18. Turn Controller Master switch OFF.



**WARNING:** *All solvent tank and vent valves must be closed for ALL OTHER FUNCTIONS.*

### N. WASHDOWN

It is extremely important that the components, lights, reflectors and safety decals on the RMT are kept clean and visible.

**NOTE:** ROSCO recommends the use of biodegradable cleaning solvents. However, if you will be using diesel fuel or kerosene, check with your state environmental authorities before using, and dispose of all materials according to local, state and federal regulations.

**DANGER:** *Diesel and/or kerosene are extremely flammable. Use great care when using these substances to wash down the RMT. Be sure that the machine has cooled enough that the burners and tank are cool to the touch. **Do not operate Burner System during washdown! The flue tubes could be exposed causing an explosion inside the tank or the material could ignite causing a fire.***



**WARNING:** *DO NOT SMOKE around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.*

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## MAINTENANCE INTERVALS

<b>3 HOURS or TWICE DAILY</b>		
Asphalt System	Check	
Pump Bearing (1)	Lubricate	Rosco Hi-Temp Grease #33384
Pump Packing Gland (1)	Lubricate	Rosco Hi-Temp Grease #33384
Air System	Check	
Hydraulic System	Check	
<b>6 HOURS or DAILY</b>		
Truck	Check	Service per Truck Operator's Manual
Tank Top Opening Cover	Check	
Cover Gasket	Check	
Cover Screen	Clean	Use Diesel Fuel or Kerosene
Overflow Vent	Clean	Use Diesel Fuel or Kerosene
Asphalt Distribution Hoses	Check	
Hydraulic Hoses	Check	
Fuel Level	Check	Add as Required
Engine Oil Level	Check	Add as Required
Coolant Level	Check	Add as Required
Cleanout Solvent Level	Check	Add as Required
Burners	Check	
Fuel Level	Check	Add as Required
Fire Tubes	Check	
Load Line Screen	Clean	Use Diesel Fuel or Kerosene
Spraybar Hyd Cylinders	Clean	
<b>20 HOURS or WEEKLY</b>		
Asphalt Pump	Check	
Packing Gland	Tighten	
Chain Coupler	Check	
Tank Capacity Indicator	Check	
Float Shaft Packing	Tighten	
Spraybar	Check	
Nozzles	Check	Adjust Alignment if Necessary
Hardware	Check	Tighten if Necessary
Tank Top Opening Cover Gasket	Check	
Tank Tie-Down Hardware	Check	
Burner System	Check	
Fuel Strainers	Clean	
Hardware	Check	Tighten if Necessary

## MAINTENANCE INTERVALS

<b>80 HOURS or MONTHLY</b>		
Asphalt Pump	Check	
Load Line Screen	Clean	
Tank Sump	Clean	
Burner (Diesel)	Clean	(Requires removal of Burner Cover)
Burner Flue Liner	Check	(Requires removal of Diesel Burner)
<b>400 HOURS or ANNUALLY</b>		
Hydraulic System	Replace	Change Oil Filter
Spraybar	Replace Replace	Pivot Point Gaskets and Washers Extension Gaskets
Burner Wash Machine	Replace	Fuel in Solvent & Burner Tank

**NOTE:** By following a careful service and maintenance program for your RMT distributor, you will insure many years of trouble free operation.



**FOLLOW ALL SAFETY PRECAUTIONS MENTIONED IN THIS MANUAL.**

### 1. FLUIDS AND LUBRICANTS

#### A. ASPHALT PUMP LUBRICATION

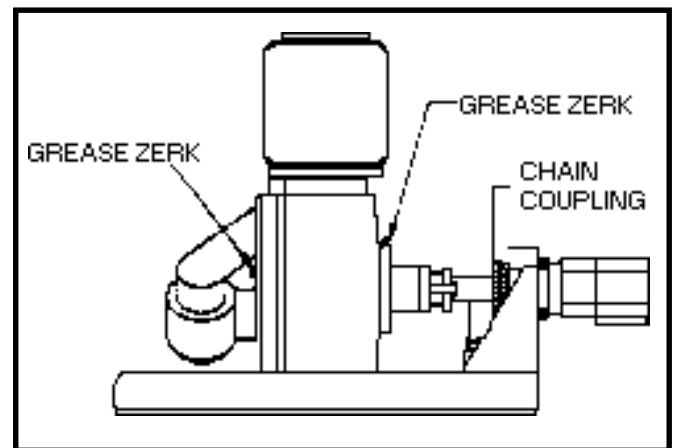
Use only ROSCO high temperature, Teflon impregnated grease (part #33384) at all times. Any other grease will be liquified in the high operating temperature and will run out of the bearings. With no lubrication, the bearings will seize in a short time.

Use only a hand held grease gun for all greasing. Wipe grease fittings with clean cloth before greasing to avoid injecting dirt and grit. Replace and repair broken grease fittings immediately. If a fitting will not take grease, remove and clean thoroughly. Clean lubricant passageway.

Lubricate asphalt pump bearings, 2 locations (Figure 1) every 3 hours or twice daily.



**ATTENTION:** Lubricate the points described above at the end of the day to prevent seizing or setting up over night.



**FIGURE 1**  
Asphalt Pump

#### B. GREASE FOR OTHER COMPONENTS

Use an SAE multi-purpose high temperature grease with extreme pressure (EP) performance or an SAE multi-purpose lithium base grease.

# MAINTENANCE

## C. HYDRAULIC OIL

When adding or changing the hydraulic oil, refer to the Hydraulic Fluids chart on page 4.13. Fluids that are not equal to those listed could result in substandard performance or failure of components.



**CAUTION:** *Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.*

## D. CLEANOUT SOLVENT

Any commercially available diesel fuel or kerosene can be used to flush out the system. If the circuit is connected to the burner fuel supply, comply with the burner fuel specification when filling the tank.



**WARNING:** *DO NOT SMOKE around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.*



**DO NOT** use any citrus solvent, technical name is Terpene Hydrocarbon, to clean out the spraybar. It destroys the Viton seals.

3. Remove the plug in the bottom of the sump. The water in the bottom of the tank will drain out.
4. When draining is complete, install and tighten the plug.

## E. ENGINE SYSTEMS

Follow recommendations in the engine manufacturer's manual for fuel, lubricating oils, coolants, lubricating greases, system capacities and servicing frequencies.

## B. TANK TOP OPENING

An opening is located in the side of the top opening to provide a vent and allow excess material to overflow the tank should it be required. Check the overflow vent at the start of each day and remove any obstruction.

A gasket is used to seal the top opening cover to prevent water from getting into the tank. It must be kept in good condition. When inspecting or replacing the seal follow this procedure:

1. Stop the engine, place all controls in neutral.
2. Be sure that the tank is cool to the touch.
3. Loosen both latches and lift the top opening cover.
4. To provide a proper seal, the gasket material must be in good condition. If it is damaged, it must be replaced. To provide a good seal, the four (4) top opening cross bar adjustment bolts must be tightened to provide uniform pressure on the gasket.

## 2. TANK

### A. TANK SUMP

The RMT is designed with a sump in the bottom of the tank where the asphalt is drawn in to the pump. The tank is equipped with a removable plug on the bottom for draining condensation and cleaning the sump. When opening the sump, follow this procedure:

1. Drain or clean the sump at the start of the day. If it is necessary to open the sump during the working day, be sure the tank is cool to the touch.
2. Stop the engine, place all controls in neutral, set park brake, remove ignition key and check to make sure tank is empty before starting.

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# MAINTENANCE

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5. To replace gasket remove fasteners in gasket retainer.
6. Use a screw driver to remove the old gasket from the retaining ring and top opening cover.
7. Fit the new gasket in the top opening lid and reinstall the gasket retainer.
8. Adjust the four (4) top opening cross bar adjustment bolts on the top opening cross bar to provide uniform gasket compression.

## C. CAPACITY INDICATOR GAUGE

A pointer gauge is located on the rear of the tank to indicate the amount of asphalt in the tank. The float in the tank is attached to a shaft through the tank wall and moves the pointer appropriately. The shaft is sealed with packing material to prevent leakage. If the seal needs adjustment or replacement, follow this procedure:

1. Stop the engine, place all controls in neutral, set park brake and remove ignition key.
2. Check under the shaft at the start of each day for seal leakage. If leakage is occurring, tighten the packing gland. If seal is leaking, tighten the nut on the packing gland 1/3 turn at a time. Do not over tighten the packing gland nut. If it is too tight it will bind preventing the shaft from turning properly. Fill the tank and see if the shaft still leaks. If so, repeat procedure. If the nut bottoms out and the shaft still leaks, the seal will have to be replaced.
3. Before replacing seal, empty the tank and allow it to cool. Remove the pointer from the shaft. Loosen and remove the packing nut. Use a small screwdriver to remove the old packing material from the cavity. Install the new

packing into the cavity. Install the packing nut and turn until it contacts the packing material. Use vise grips to turn the shaft and lift the float. When the shaft is released, the float should turn the shaft easily as it moves down. Install the pointer in its previous position.

## D. TANK MOUNTING HARDWARE

The tank is attached to the truck frame with bolts. During use, mounting hardware will need to be tightened. Follow this procedure:

1. Stop the engine, place all controls in neutral, set park brake and remove ignition key. **Be sure** the tank is cool to the touch.
2. The best time to check the hardware is at the start of the working day.
3. Tighten the anchor bolts to 25 Ft/Lbs.
4. Keep the hardware tight at all times to prevent the tank from shifting on frame.

## 3. ASPHALT PUMP SYSTEMS

### A. PUMP

The asphalt pump input shaft uses a special material that is packed into a cavity around the shaft to seal the hot material into the pump. To adjust this seal follow this procedure:



**CAUTION:** *Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.*



**WARNING:** *DO NOT SMOKE around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.*

1. Stop the engine, place all controls in neutral, set park brake and remove ignition key. Be sure that all components are cool to the touch.
2. Visually inspect the pump on a weekly basis for shaft leakage. *Correct adjustment of the packing gland will allow for a slight weeping.* No weeping means the gland is probably too tight and shaft damage could occur. If more than slight weeping is observed, tighten the packing gland. When in CLEANOUT mode a small amount of diesel fuel may leak from shaft. This is normal.
3. To adjust the packing material, tighten the bolts on the packing gland. Tighten both bolts 1/2 turn and check for seepage. Readjust if required. Adjust the mounting bolts an equal amount each time to maintain an even pressure on the packing material.
4. Replace packing material when gland adjustment does not stop shaft leakage.

## B. PUMP RELIEF VALVE

The asphalt circuit is designed with a relief valve (Figure 2) to prevent damaging

components when the system pressure gets too high. To adjust the relief pressure follow this procedure:

1. The valve is set at the factory to 75 PSI for all operating conditions.
2. To check the relief pressure, there must be material in the tank. Stop the engine, place all controls in neutral, set park brake and remove ignition key.
3. Allow machine to cool to the touch.
4. Set all manual valves in the rear to CLOSED. Restart the engine.
5. Set the in-cab Mode Selection switch to REVERSE SUCTION. Run the pump at maximum GPM.
6. Slowly open the 3/4 inch (19.05 mm) plug on top of the strainer box (Figure 3) and listen for a suction sound. If sound is heard, remove the plug and install a 0-100 PSI pressure gauge with diaphragm (ROSCO part #5058) to the screen box. If a suction sound is not heard, check all switches to be sure the right settings are being used.

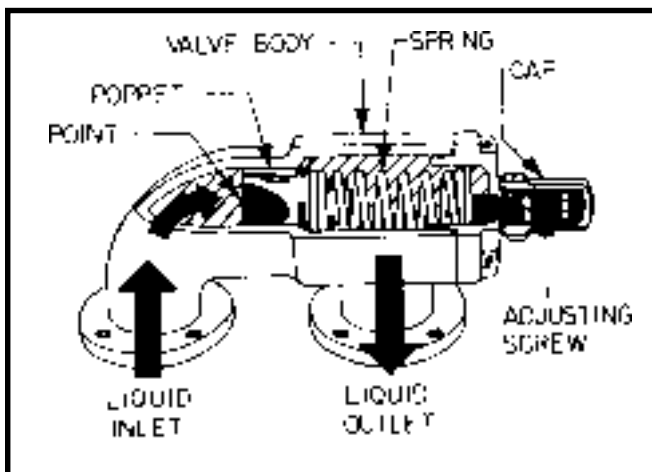


FIGURE 2  
Relief Valve

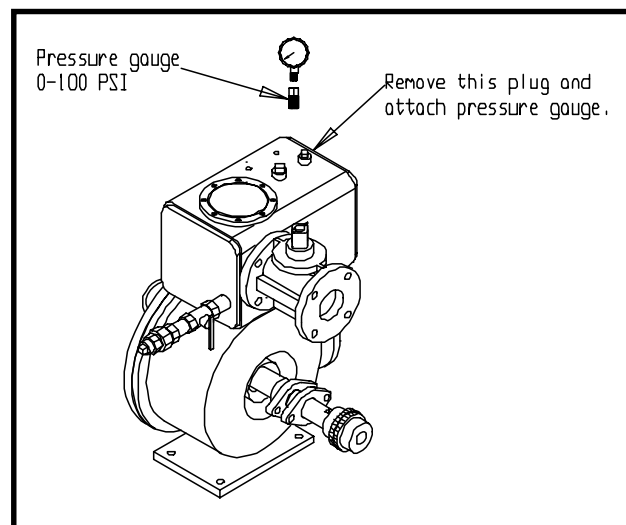


FIGURE 3  
Test Gauge Placement

7. After the gauge is installed, set the in-cab Mode Selection switch to SPRAY OR BAR CIRCULATE for 3 to 5 minutes. Then close the right side manual bar valve. Run the pump at maximum GPM. Check the pressure. It should read 75 PSI. If it does not, adjust with adjusting screw.
8. Remove the valve cap that covers the adjusting screw.
9. Slowly turn the adjusting screw. Turn the screw clockwise to increase the relief pressure and turn it counter-clockwise to decrease pressure. The screw should extend 9/16 inch (14 mm) out of the bonnet casting for the needed pressure.

If proper pressure cannot be achieved, valve may need to be cleaned or replaced. To clean the relief valve, follow this procedure:

1. Disconnect the dump line from the asphalt pump housing. Remove the relief valve from the asphalt pump housing.
2. Use diesel fuel to thoroughly clean the valve. Dispose of cleaning material according to local, state and federal regulations.
3. Be sure nothing is stuck under the poppet. Check that the spring moves the poppet easily and seats it firmly in the base.
4. If any components are damaged or broken, replace the valve.
5. Set the adjusting screw so that it extends 9/16 inch out of the bonnet casting.
6. Attach to the pump housing and

connect the dump line using new gaskets.

### C. PUMP DISCHARGE SCREEN

A screen (Figure 4) is located in the outlet side of the pump manifold weldment box to prevent large contaminants from reaching the nozzles. It should be cleaned monthly during the working season. To clean the screen follow this procedure:

1. Stop the engine, place all controls in neutral, set park brake and remove ignition key.
2. Be sure the tank is empty and the circuit is washed out.
3. Allow machine to cool to the touch.
4. Remove bolts holding access cover to pump weldment. Remove the access cover from the pump weldment box.
5. Remove any trash or debris that has become caught in the screen.
6. If the screen is damaged in any way, replace it using genuine ROSCO parts.
7. Use a screwdriver or putty knife to remove the old gasket on the cover and housing.

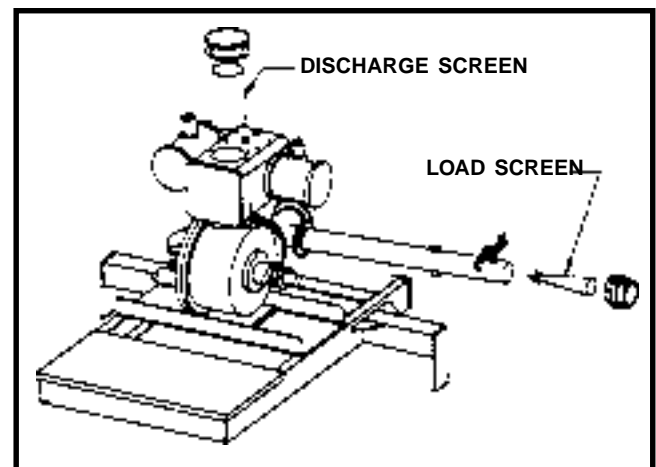


FIGURE 4  
Discharge Screen & Load Screen

# MAINTENANCE

8. Use the special ROSCO high temperature gasket sealant under this cover to prevent leakage. (ROSCO part #33707)
9. Install the cover and tighten the mounting bolts to their specified torque (28 Ft/Lbs).



**CAUTION:** Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.



**WARNING:** DO NOT SMOKE around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.

## D. LOAD LINE SCREEN

A conical screen (Figure 4) is located in the load line to stop debris or trash from entering the system. To inspect the screen follow this procedure:

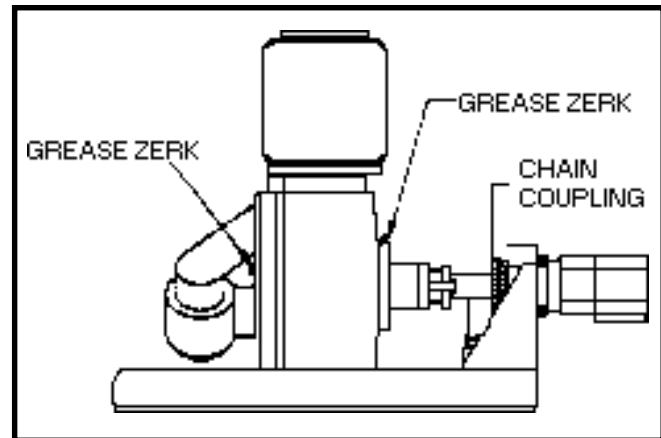
1. Visually inspect the screen at the start of each working day and whenever the cap is removed from the load line.
2. Remove any object lodged against the screen..
3. Inspect the screen for damage or holes. If any are noticed, remove screen from the line and replace immediately.



**ATTENTION:** Do not operate with a damaged screen. Objects that enter the system can damage the pump.

## E. PUMP DRIVE

The asphalt pump is driven by a fixed displacement hydraulic motor through a double chain coupler (Figure 5). Inspect the components and maintain the system



**FIGURE 5**  
Asphalt Pump Drive

in good working order. Follow this procedure:

1. Stop the engine, place all controls in neutral, set park brake and remove ignition key.
2. Allow machine to cool to the touch.
3. Visually check the condition of the coupler on a bi-weekly basis. If wear can be seen on the rollers or sprocket teeth, replace the coupler. Be sure the shafts are aligned and the sprockets securely fastened to the shaft before resuming operation.
4. A sensor is installed in the hydraulic motor to measure motor speed. If the sensor malfunctions, contact an authorized ROSCO dealer for assistance.
5. Check the tightness of the hydraulic motor mounting bolts. Tighten if necessary. Adjust the hydraulic motor mounts when aligning shaft and chain coupler.

## F. AUTOMATIC VALVES

The asphalt flow is controlled by three air valves. The valves are switched through electric solenoids controlling air actuators.

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# MAINTENANCE

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**1. FUNCTIONAL CHECK**

Turn the in-cab Mode Selection switch from one position to another and watch to see if the valve functions correctly.

**2. SOLENOID CHECK**

The air valves are located in the rear valve compartment.

- a. Shut OFF system power or disconnect the power wire from the solenoid on the valve.
- b. Depress or turn the slotted button on the air valve. You should hear the valve or air actuator respond.
- c. Reset to normal and the valve should return to its original position.
- d. On the On/Off valve, repeat with other solenoid.
- e. Reconnect power wire.

**3. ELECTRICAL CHECK**

Disconnect power wire and use an ohmmeter to check the coil resistance. A good coil will have between 30 and 35 ohms.

**4. SPRAYBAR**

The spraybar is mounted on the back of the RMT and its purpose is to distribute asphalt over the road surface. Circuits to distribute asphalt to the nozzles and an air system for valve actuation are included with the spraybar. Maintain the system by following this procedure:



**CAUTION:** Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.



**DO NOT** use any citrus solvent, technical name is Terpene Hydrocarbon, to clean out the spraybar. It destroys the Viton seals.



**WARNING:** DO NOT SMOKE around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.

- A. Clean the internal asphalt system after every use by going through the REVERSE SUCTION and CLEANOUT modes. (See Section III.) It is important to keep the internal components clean to prevent clogging of any component or setting up in the nozzles.

**Note:** Some residue will always be left on the inner surfaces of the plumbing, but it will reliefs when the hot asphalt flows through the system in the SPRAY OR BAR CIRCULATE mode.

- B. Clean all spraybar components at the end of each working day or more frequently if required.
- C. Clean all joints and pivots of the asphalt, hydraulic and air systems to prevent caked dirt or asphalt from interfering with their function. Be sure to clean the exposed shafts of each air and hydraulic cylinder to prevent caked asphalt from being drawn into the system when the ram is retracted.
- D. Visually check all hoses, fittings and clamps for leaks or loose components. Leaks can affect the performance and function of the machine by causing uneven asphalt application and wasted asphalt.
- E. Check that all pivots, hinges and joints are tight and can move freely. Free up all points that are binding.
- F. Check that all fasteners are tight. Do not operate with loose components.
- G. Review bolt specifications and maintain them at their specified torque. Refer to chart on page 4.15.

# MAINTENANCE



**ATTENTION:** Do not operate the unit with leaking or damaged parts. Leaks can result in hot asphalt spilling on the machine or the operator and can create a hazardous condition.

## 5. HYDRAULIC SYSTEM

Hydraulic power is used to drive the asphalt pump. A direct drive from the engine is used to power a variable displacement piston pump to drive the asphalt pump and auxiliary functions. The hydraulic motor powering the asphalt pump is a fixed displacement motor. Service and maintain the system by following this procedure:



**CAUTION:** Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.



**WARNING:** DO NOT SMOKE around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.

- A. The hydraulic reservoir is located at the front of the RMT. Check the sight gauge at the start of each day during the working season. The oil level should be at the center of the sight glass to allow room for expansion when the oil warms during operation.
- B. Add oil through the filler cap on the side of the tank. Clean the cap and filler neck before filling to be sure that no dirt or contaminants enter the tank. Hydrostatic systems will fail in a short time if the oil is not clean. Watch the sight glass when adding oil. Add until the oil level is in the center of the gauge.
- C. Change the oil in the reservoir annually or every 400 hours whichever comes first. The drain plug is located in the bottom of the tank. Drain the oil when system is warm or hot to remove the most

contaminants. **DO NOT SMOKE when working around hot oil.** Use a large pail or container to collect the used oil. Dispose of the used oil in an approved manner. Refer to the Hydraulic Fluids chart on page 4.13 for recommended grades and manufacturers. Watch the sight gauge.

- D. The hydraulic system is equipped with an oil filter to remove dirt and other contaminants. Change the oil filter after 400 hours or annually.

## 6. BURNER SYSTEM

### A. DIESEL BURNERS

The Diesel Burners are located at the rear of the RMT. Check the burner operation on a daily basis. Follow this procedure:



**CAUTION:** Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.



**WARNING:** DO NOT SMOKE around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.

1. Excessive smoke or trouble starting means burner cover must be removed for cleaning or adjustment. Visually inspect the burner and mounting system daily and tighten, repair or replace components as required.
2. Check fuel level in the tanks on a daily basis. Add as required.
3. Check the fuel filter and fuel lines before the burners are ignited. Tighten fittings that are leaking and replace any damaged parts. Clean filter as required.

# MAINTENANCE

4. On a monthly basis or every 80 hours remove burner covers to check condition of burner. Clean build up of asphalt from burner components.
5. On a monthly basis or every 80 hours remove burner from tank and check the condition of the flue liners and flue tubes. Replace liner if damaged and inspect flue tubes.



**WARNING:** *Never operate burners if flue tubes are damaged. Asphalt material coming through the cracked tube could ignite when the burner is lit. Consult your ROSCO Dealer for repair procedures.*

## B. LPG BURNER

The LPG Burners are located at the rear of the RMT. Check the burner operation on a daily basis. Follow this procedure:



**CAUTION:** *Always wear protective clothing, gloves and a face shield. Contact with hot asphalt can cause severe burns.*



**WARNING:** *DO NOT SMOKE around the machine. Fuel, asphalt material and the fumes from both can explode when exposed to flame or heat from smoking or other sources.*

1. Visually inspect the burner and mounting system on a daily basis. Tighten, repair or replace components as required.
2. Check the fuel level in the tanks on a daily basis.
3. Check the valves and fuel lines before the burners are lit. If a leak is suspected, use soapy water to identify the source.

4. Use a wrench to tighten the burner mounting hardware before using the burners.
5. Visually inspect the flue tubes for cracks or other damage.



**WARNING:** *Never operate burners if flue tubes are damaged. Asphalt material coming through the cracked tube could ignite when the burner is lit. Consult your ROSCO Dealer for repair procedures.*

## 7. DAILY EXTERIOR MAINTENANCE

Clean the top platform, steps, railings, ladder and catwalk to prevent accidents during operation. Clean the instruction plates, decals, gauges and other information plaques so they can be seen and read by the operator at all times. Replace any decals or information plates that are damaged or illegible.

## 8. STORAGE

**Do not store equipment where it is subjected to damage by dirt and weather.** A stored machine requires as much periodic maintenance as a machine at work. Stored units must receive periodic scheduled maintenance. Many instances of downtime and customer dissatisfaction can be traced to parts that became defective due to inattention during storage.

Below are procedures which, if followed, will help maintain equipment and lessen downtime.

- A. Thoroughly clean the unit as you would at the end of the day. **Be sure there is no asphalt in the tank, pump or piping.** Use the **Maintenance Interval Chart** at the beginning of this section and check and/or clean every component listed.
- B. Replace any worn or damaged parts. Touch up any scratched or chipped painted surfaces.

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## MAINTENANCE

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- C. Lubricate all grease points. Make sure all grease cavities have been filled with grease.
- D. Top up all fluid levels to minimize condensation during storage.
- E. Inspect all air and hydraulic hoses, couplers, fittings and cylinders. Tighten any loose fittings and replace any hoses that are worn.
- F. Check all safety decals. Replace any decals that are damaged or illegible.
- G. All units should be stored where they are protected from adverse weather conditions. Likewise, all replacement parts, whether complete assemblies, component repair parts or service kits should be stored in a dry sheltered area.
- H. Fill the pump and bar with solvent as outlined in Section III - CLEANOUT mode.
- I. If a unit will not be used for more than two (2) months:
  - 1. **Check for Water in Hydraulic Fluid**  
Check on a regular basis for moisture contamination. This moisture is generally produced by condensation on the inside of the tank walls.

### 3. Lubrication

After the machine is warmed-up, grease all pivot points, following standard Operation Manual procedures.

**ATTENTION:** *Hydraulic oil that is contaminated, must be drained, the filter elements replaced and the tank refilled with ROSCO approved fluid. Failure to do this could result in premature failure of the pumps and/or motors.*



### 2. Warm-up and Cycling

Start and run engine until warm. Cycle all hydraulic and/or hydrostatic functions until all components are warm and the hydraulic fluid is up to operating temperature.

## HYDRAULIC FLUIDS

The below recommended hydraulic oils have been reviewed by ROSCO and are recommended as replacements. It is best to use the heaviest weight oil that can safely be used for the temperature range of machine operation. If your machine will never be used at temperatures below 0°F, use a heavier weight oil.

If you are considering using an oil that is not listed, contact the ROSCO factory to obtain specifications that the hydraulic oil must meet to provide the needed lubrication and cooling for the unit's hydraulic components.

### HYDRAULIC OIL REQUIREMENTS AND APPROVED BRANDS FOR FIELD FILL:



**ATTENTION:** *DO NOT MIX manufacturers or grade weights when adding hydraulic oil.*

**Be sure** hydraulic oil selection is compatible with your hydraulic system.

**Be sure** to use mineral base hydraulic oil.

**Be sure** hydraulic oil selection assistance is from a reputable supplier.

**Be sure** the hydraulic specifications meet or exceed the following specifications.

Hydraulic oil must provide anti-wear properties that meet or exceed those found in the API (American Petroleum Institute) classification SD, SE or CC crank case oil.

Hydraulic oil viscosity must not fall below 70 SUS (13 cs) in the reservoir under the most adverse conditions. The best viscosity being 80-300 SUS (17 cs to 65 cs). The viscosity rating at the lowest expected start-up temperature should not exceed 10,000 SUS (2158 cs).

Hydraulic oil must have rust and oxidation inhibitors that will maintain chemical stability. When changing the hydraulic oil, the hydraulic system must be completely drained. Be sure to purge or drain all hoses, cylinders, valves, motors and pumps of hydraulic oil. All hydraulic oil filters must also be changed at this time.

<b>ISO 46 / SAE 20 AMBIENT TEMP.</b> -15° F TO 80° F (-26° TO 27° C) -  Special Start-up Below 5° F (-15° C) Hyd Res Temp Max 165° F (74° C)	<b>ISO 68 AMBIENT TEMP.</b> 0° F TO 100° F (-18° TO 38° C)  Special Start-up Below 20° F (-7° C) Hyd Res Temp Max 185° F (85° C)	<b>ISO 100 / SAE 30 AMBIENT TEMP.</b> 15° F TO 115° F (-9° TO 46° C)  Special Start-up Below 32° F (0° C) Hyd Res Temp Max 200°F (93° C)
MOBIL DTE 25	MOBIL DTE 26	MOBIL DTE AW 100/DTE 18M
CITGO AW 46	CITGO AW 68	CITGO AW 100
CONOCO PHILLIPS 46	CONOCO PHILLIPS 68	CONOCO PHILLIPS 100
CHEVRON TEXACO AW 46	CHEVRON TEXACO AW 68	CHEVRON TEXACO AW 100
SHELL TELLUS 46	SHELL TELLUS 68	SHELL TELLUS 100
EXXON NUTO 46	EXXON NUTO 68	EXXON NUTO 100

## HYDRAULIC FITTING TORQUE

### TIGHTENING FLARE TYPE TUBE FITTINGS

1. Check the flare and flare seat for defects that might cause leakage.
2. Align tube with fitting before tightening.
3. Lubricate connection and hand tighten swivel nut until snug.
4. To prevent twisting the tube(s), use two wrenches. Place one wrench on the connector body and with the second, tighten the swivel nut to the torque shown.

**Note:** The torque values shown are based on lubricated connections as in assembly.

Tube Size OD	Nut Size Across Flats	Torque Value (see note)		Recommended Turns to Tighten (After Finger Tightening)	
		(N.m)	(lb-ft)	(Flats)	(Turns)
3/16	7/16	8	6	1	1/6
1/4	9/16	12	9	1	1/6
5/16	5/8	16	12	1	1/6
3/8	11/16	24	18	1	1/6
1/2	7/8	46	34	1	1/6
5/8	1	62	46	1	1/6
3/4	1-1/4	102	75	3/4	1/8
7/8	1-3/8	122	90	3/4	1/8

### TIGHTENING O-RING FITTINGS

1. Inspect O-ring and seat for dirt or obvious defects.
2. On angle fittings, back the lock nut off until washer bottoms out at top of groove.
3. Hand tighten fitting until back-up washer or washer face (if straight fitting) bottoms on face and O-ring is seated.
4. Position angle fittings by unscrewing no more than one turn.
5. Tighten straight fittings to torque shown.
6. Tighten while holding body of fitting with a wrench.

**Note:** The torque values shown are based on lubricated connections as in reassembly.

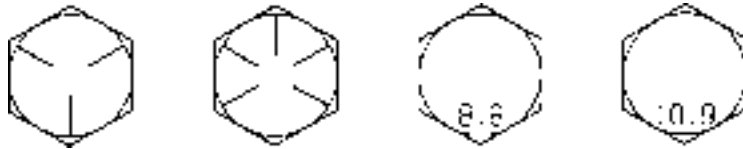
Tube Size OD	Nut Size Across Flats	Torque Value (see note)		Recommended Turns to Tighten (After Finger Tightening)	
		(N.m)	(lb-ft)	(Flats)	(Turns)
3/8	1/2	8	6	2	1/3
7/16	9/16	12	9	2	1/3
1/2	5/8	16	12	2	1/3
9/16	11/16	24	18	2	1/3
3/4	7/8	46	34	2	1/3
7/8	1	62	46	1-1/2	1/4
1-1/16	1-1/4	102	75	1	1/6
1-3/16	1-3/8	122	90	1	1/6
1-5/16	1-1/2	142	105	3/4	1/8
1-5/8	1-7/8	190	140	3/4	1/8
1-7/8	2-1/8	217	160	1/2	1/12

## BOLT TORQUE CHART

The table below gives the correct torque values for various **NON-LUBRICATED** bolts. **DO NOT** lubricate bolts unless otherwise specified in this manual. Check tightness of bolts periodically, using this table as a guide. **ALWAYS** replace hardware with an equal strength fastener. When using locking fastener, increase torque values by 5%.

N-M = Newton Meter  
FT-LB = Foot Pound

### BOLT IDENTIFICATION BY HEAD MARKINGS:



BOLT SIZE	ENGLISH				METRIC			
	GRADE 5		GRADE 8		CLASS 8.8		CLASS 10.9	
	FT-LB	N-M	FT-LB	N-M	FT-LB	N-M	FT-LB	N-M
M6					7	10	11	15
1/4	9	12	12	17				
5/16	19	25	27	36				
M8					18	25	26	35
3/8	33	45	45	63				
M10					37	50	52	70
7/16	53	72	75	100				
M12					66	90	92	125
1/2	80	110	115	155				
M14					103	140	148	200
9/16	115	155	165	220				
5/8	160	215	220	305				
M16					166	225	229	310
3/4	290	390	400	540				
M20					321	435	450	610
7/8	420	570	650	880				
M24					553	750	774	1050
1	630	850	970	1320				
M30					1103	1495	1550	2100

# TROUBLESHOOTING

The following Troubleshooting Guide includes some problems that an operator may encounter during the course of operating the RMT Asphalt Distributor. It also includes some acceptable corrections to these problems. Unless otherwise noted, the problems listed here are those which an operator can diagnose and repair. See an Authorized ROSCO Dealer/Distributor for diagnosis and repair of problems **not** listed. For specific engine and hydraulic problems not covered by this guide, please refer to the Engine or Hydraulic Pump/Motor Manufacturer's manual.



**DO NOT Attempt to Service or Repair Major Components**, such as the engine, hydrostatic pump or motor, etc., unless authorized to do so by your ROSCO Dealer/Distributor. **ANY UNAUTHORIZED REPAIR WILL VOID THE WARRANTY.**

**When a problem occurs, don't overlook the simple causes.** For example, a starting problem could be caused by something as simple as an empty fuel tank. After a mechanical failure has been corrected, be sure to locate and correct the cause of the problem.

## Problem Index (alphabetical order) -----

Asphalt application inconsistent -----	4.20	No GPM readout -----	4.22
Asphalt application too light -----	4.21	Solenoid leaks -----	4.22
Asphalt pump won't pick up -----	4.18 - 4.19	Solenoid gets hot -----	4.22
Asphalt pump won't turn fast enough -----	4.19	Solenoid sticking -----	4.22
Asphalt pump won't turn -----	4.21	Spraybar doesn't circulate -----	4.20
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Burner ignites - poor flame -----	4.24	Spraybar streaks then comes on full -----	4.23
Burner will not ignite -----	4.24	Spray valve stays on -----	4.22
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Hydraulic oil temp. too high -----	4.17 - 4.18	Streaking of asphalt -----	4.21
Hydraulic system "chatters" -----	4.17	Tank valve stuck -----	4.22
Nozzles spraying light -----	4.22	Valves difficult to operate -----	4.19
No diesel fuel to burners -----	4.24	Vibration, entire machine -----	4.17

# TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
1. Entire machines vibrates	Hydraulic pump mounting bolts or bracket bolts loose.	Tighten bolts.
	Asphalt pump cavitating and running too fast.	Troubleshoot cause of pump cavitation; slow pump speed down.
2. "Chatter" heard during hydraulic system operation. <b>NOTE A: Some clicking or chattering noise is natural and can be heard at the asphalt pump motor. The geroter motor makes some of the noise and the double link chain coupling also makes some noise.</b>	Air in hydraulic system (oil foaming) from: <ul style="list-style-type: none"> <li>• clogged air filter</li> <li>• low oil level</li> <li>• leaks in system</li> <li>• hydraulic pump cavitation</li> </ul>	Change air filter. Add fluid to the proper level. Purge air from system, check for leaks. Check for restrictions to inlet flow on hydrostatic and hydraulic pumps.
	Pressure setting of hydrostatic pump relief valve too low.	Check hydrostatic pump relief pressure; should be 4350 PSI
	Tank valve closed and asphalt pump is cavitating.	Open tank valve; tank valve may be stuck closed and require additional force to open.
	Asphalt pump relief valve not operating.	Check asphalt pump relief valve; should be set at 75 PSI
3. High temperature on hydraulic oil gauge.	Low hydraulic oil level.	Add fluid to proper level.
	Reservoir and/or hoses covered with asphalt.	Clean with solvent.
	Hydraulic filter(s) plugged.	Replace filters.
	Air trapped in hydraulic system.	Check for leaks and/or restrictions in the hydraulic lines.
	Asphalt viscosity is circulating system too thick causing excessive hydraulic pressures.	Heat material to proper temperature as recommended by asphalt supplier.
	Relief valve setting too low on hydrostatic pump.	Check hydrostatic pump relief pressure; should be 4350 PSI. Relief is adjustable by adding shims; see pump manual.
	Hydraulic cooler dirty or plugged.	Clean cooler.

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## TROUBLESHOOTING

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PROBLEM	CAUSE	SOLUTION
4. Asphalt pump turns but won't pick up material.	Air leak on suction side of asphalt pump.	Check gasket on quick coupling cap of load inlet. No "air suction" sound should be heard. Check for hole in piping on the suction side of the asphalt pump. Make sure ball valve from solvent tank and load line bleed valve are closed.
	Asphalt cold or too thick.	Heat asphalt material to the proper temperature recommended by asphalt supplier.
	Tank valve closed.	Check operation of the tank valve. Free the valve if stuck and air cylinder cannot pull it open. Reversing rotation of asphalt pump may assist valve opening.
	Asphalt pump not turning in a "forward" rotation.	When viewed from the shaft end (motor end), shaft should turn clockwise for forward. Check that the pump moves in the forward direction when the control panel manual pump control dial is rotated clockwise. The pump control switch must be in FORWARD position.
	Circulating system valves not set correctly for the required operating mode.	Check <b>Operating</b> section to determine correct valve positions for desired mode. Check corresponding air solenoids to see if they are activated.
	Asphalt tank empty.	Fill asphalt tank with material.
	Load hose plugged or collapsed.	Clean hose or replace.
	Valve on external tank (Transport or Stationary) closed; occurs on TANK LOADING only.	Open valve.
	Inlet screen plugged.	Clean inlet screen in load line and optional inlet box if so equipped.

# TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
5. Asphalt pump won't turn fast enough.	Asphalt not heated to recommended temperature.	Heat material to temperature recommended by asphalt supplier.
	Sump is full of asphalt or debris.	When in tank circulate, run pump in reverse for about 1 minute.
	Cold asphalt clogging pump or circulating system valves.	Apply heat with portable torch to asphalt pump, piping or valves in circulating system.
	Air trapped in hydraulic system.	<b>See Problem 2</b>
	High system temperature.	<b>See Problem 3</b>
	Malfunction of the hydraulic system components.	Check for leaks in hydraulic system components, hoses and hose fittings. <b>See Problems 2 &amp; 3</b>
6. Valves in circulating system are difficult to operate.	Low air pressure or no air pressure.	Increase truck air pressure to 90 - 110 PSI.
	Cold asphalt material clogging valves.	Apply heat to valves with portable torch if required to restore operation. <b>Use caution not to heat air actuators or air lines.</b> Follow proper cleanout procedure outlined in Section III.
7. Bitumen leaks at asphalt pump rotor shaft gland.	Gland not properly tightened.	Tighten gland.
	Shaft packing worn.	Replace packing.
	Insufficient lubrication of pump rotor shaft.	Lubricate pump rotor shaft.
	Pump shaft grooved, bent or worn.	Replace pump shaft. Check for causes of shaft damage (Misalignment, loose mounts, packing too tight).
8. Asphalt pump does not turn.	Hydraulic pump failure.	Check to be sure filter is not plugged.
	Asphalt not heated to recommended temperature for spraying.	Heat material to temperature recommended by asphalt supplier.

# TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
9. Spraybar doesn't circulate properly.	Circulating system valves may not be set for Spraybar Circulate.	Check valve actuator positions against information in the Operation Section. Free up stuck air actuators. Check that proper air solenoid valves are activated. <b>See Problem 4</b>
	Cold asphalt material blocking passages in the spray bar.	Apply heat to spray bar with hot steam, air, or electrical heat tapes to loosen material.
	Asphalt pump not turning or tank valve closed.	<b>See Problems 4 &amp; 12.</b> Pump should turn clockwise when looking at input shaft.
	Plugged or restricted inlet to asphalt pump.	<b>See Problem 4</b>
10. Inconsistent application of asphalt.	Inconsistent asphalt temperature and viscosity between tank loads.	Monitor asphalt temperature and reheat when needed. Circulate spray bar for several minutes before spraying.
	Asphalt pump speed too high for type of nozzles used, relief valve on pump limits pressure to spray bar; excess flow bypasses to inlet of pump.	Slow truck speed down. Refer to calibration and application rate information in Section II & III to determine correct settings.
	Relief valve on asphalt pump stuck in open position.	Set relief valve.
	Relief valve not seating properly.	Take to authorized dealer and have them check the seal between the seat and the poppet.
11. "Fogging" occurs when spraying.	Ground speed is too fast for desired application rate.	Slow down ground speed.
	Nozzles are too small.	Increase nozzle size.
	Asphalt viscosity is thinner than recommended for spraying.	Allow asphalt to cool to spraying temperature recommended by the asphalt supplier.
	Asphalt pump is running too fast for desired application rate.	Flow calibration and/or ground speed calibration are incorrect. <b>See Problem 13</b> and refer to calibration and application rate information in Section II & Section III.

# TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
<b>12.</b> Streaking of asphalt during spraying.	Incorrect spray bar height.	Adjust spray bar up high enough so spray fans completely overlap.
	Asphalt not heated to recommended temperature for spraying.	Heat material to temperature recommended by asphalt supplier.
	Spraybar nozzles not uniformly set to 20° angle.	Check angle setting of ALL nozzles with adjusting wrench.
	Valves not aligned correctly.	Check angle setting with alignment tool.
	Asphalt pump speed too slow for spray bar width or size of nozzles.	Refer to Calibration and Application Information. Section II & Section III.
	Streaking during start of a "shot" indicates material in spray bar has cooled.	Run distributor in spray bar circulate mode for several minutes before starting to spray.
<b>13.</b> Asphalt application rate too light.	Spraybar pressure too low	Increase ground speed.
	Ground speed too fast.	Slow truck down.
	Engine RPM's not sufficient to keep asphalt pump speed up.	Gear down and/or idle up.
	Plugged or restricted inlet to asphalt pump.	Clean asphalt tank sump and suction screens.
	Nozzles too small for application rate for a given ground speed.	Slow truck down.
	Asphalt material viscosity too thick, at too low a temperature.	Heat material to a higher temperature.
	More spray bar extended (or activated) than used in Calibration.	See Calibration and Application Information. Section II & Section III.
<b>14.</b> No GPM readout on display or inconsistent.	Faulty wiring or sensor.	Test wiring and sensor. Replace if necessary.
<b>15.</b> Individual nozzles spraying light or air.	Nozzle clogged.	Clean nozzle.

# TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
16. Spraybar shuts off while spraying.	Blown fuse or circuit breaker.	Replace fuse or reset circuit breaker.
	Faulty wires; loose wiring plug on back of instrument panel.	Check wiring continuity; reconnect plugs on panel.
	Low air pressure; air leak.	Rebuild truck air pressure; check for and fix air leaks.
17. Air solenoid valves leaking.	Spool section jammed/sticking on air valve.	Replace spool. <b>NOTE B: Block at A &amp; B ports with pipe plugs and bench test assembly with shop air supplied to inlet. Manually or electrically operate each valve section to insure proper operation.</b>
18. Air solenoid valve sticking.	Gummy deposits form which cause spool to hang up or dirt in valves.	Clean or replace. Solvent washing of air valves can create more problems by causing valve seals to swell. Replacement is the most reliable repair.
	Bodies of valves damaged or warped.	Replace valves.
19. Solenoids hot.	Solenoids when operating will feel hot to the touch; too hot to hang onto after they have been energized continuously for several minutes.	Check voltage marked on side of solenoid. Should have 12V DC shown.
20. Tank valve stuck closed.	No air pressure on lift (bottom) side of spray valve air cylinder.	Check air solenoid valve operation. Check for kinked or blocked air hoses.
	Tank valve stem packing nut too tight.	Loosen stem nut slightly.
21. Spray valve (individual) staying on or not fully closing.	Debris in spray valve.	Open spray valve, remove nozzle and clear debris with wire hook.
	Actuator handle on spray valve not correctly aligned with spray valve body.	Use valve installation tool to align valve actuator with valve body. See Nozzles Section II.

# TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
22. Spray valve (individual) staying closed or not fully open.	Actuator handle spray valve not correctly aligned with valve.	Use valve installation tool to align valve actuator with valve body. See Nozzles Section II.
23. Complete spray bar section not coming on.	Control switch for that section of spray bar not activated.	Activate switch on instrument panel.
	Solenoid air valve for that section not coming on.	Check solenoid air valve by using manual override button. If ok, check wiring and solenoid. Repair or replace.
	Air hose plugged, collapsed or broken.	Replace hose(s).
	Asphalt feed hoses to that section are plugged or collapsed.	Clean or replace asphalt hose(s).
24. RH and LH spray bar section spraying light.	Spraybar not heated properly.	Circulate spray bar for several minutes before attempting to spray.
	Asphalt feed hose(s) partially plugged or collapsed.	Clean or replace hose(s).
25. Bar sprays streaks then comes on full.	Spraybar not heated properly.	Circulate spray bar.
	Asphalt pump not at correct speed.	Check flow and speed calibration factors and adjust if needed. <b>See Problem 5</b>
	Hydrostatic pump malfunction.	See <b>Problems 5, 11 &amp; 12</b>
26. Blower motor for high pressure diesel burners will not run.	Check for power.	Run truck. Check the truck alternator.
	Check for loose wires and connections.	Repair or replace. Tighten connections.
27. Fan for high pressure diesel burners turns less than 2800 rpm.	Check for excessive dirt build up on blower fins.	Clean off fins and fan shroud.
	Not enough voltage for proper fan operation.	Check with truck running. Check truck electrical system.
	Check for loose wire connections.	Repair or replace. Tighten connections.

# TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
<b>28.</b> No diesel fuel to burner.	No fuel in tank.	Fill fuel tank.
	Faulty fuel solenoid.	Check solenoid. Repair or replace.
	Plugged fuel filter. Check both main and in line filters.	Replace fuel filter or filters.
	Contaminated fuel.	Drain system and replace fuel.
	Loose or damaged fuel pump coupling.	Tighten or replace.
	Air in the fuel system.	Check filter. Tighten hose connections.
<b>29.</b> Diesel fuel will not ignite. (Igniters not working properly)	Fuel combustion problems.	Test for combustibility. Remove fuel suction line. Insert into a container of #1 diesel fuel or stove fuel and try running burner. If burner lights and runs properly, problem is due to low sulphur fuel. Use a fuel additive to aid combustion.
	Low fuel pressure.	Check fuel pressure. Must be 140 psi.
	Igniter clearance is wrong.	The electrodes should be ¼" (6.4 mm) from tip of nozzle and no more than ¼" (6.4mm) from electrode tip to tip.
	Faulty relay in burner control box	Replace relay.
	Soot build up on fuel nozzle.	Replace nozzles.
	Air intake not set properly.	Adjust air inlet or band on blower.
<b>30.</b> Diesel burner ignites but has fluttering and blow back.	Clogged fuel filter.	Replace in line fuel filter.
	Air intake not set properly.	Adjust air inlet or band on blower.
	Low sulfur fuel is being used.	Use a fuel additive to aid combustion.
	Fan is running too slow.	Clean fan blade fins. Check voltage.
	Low fuel pressure.	Fuel pressure must be 140 psi.
	Faulty fuel nozzle.	Replace with factory recommended nozzle.
	Air in the fuel system.	Check filter. Tighten hose connections.

# SECTION V

## PARTS

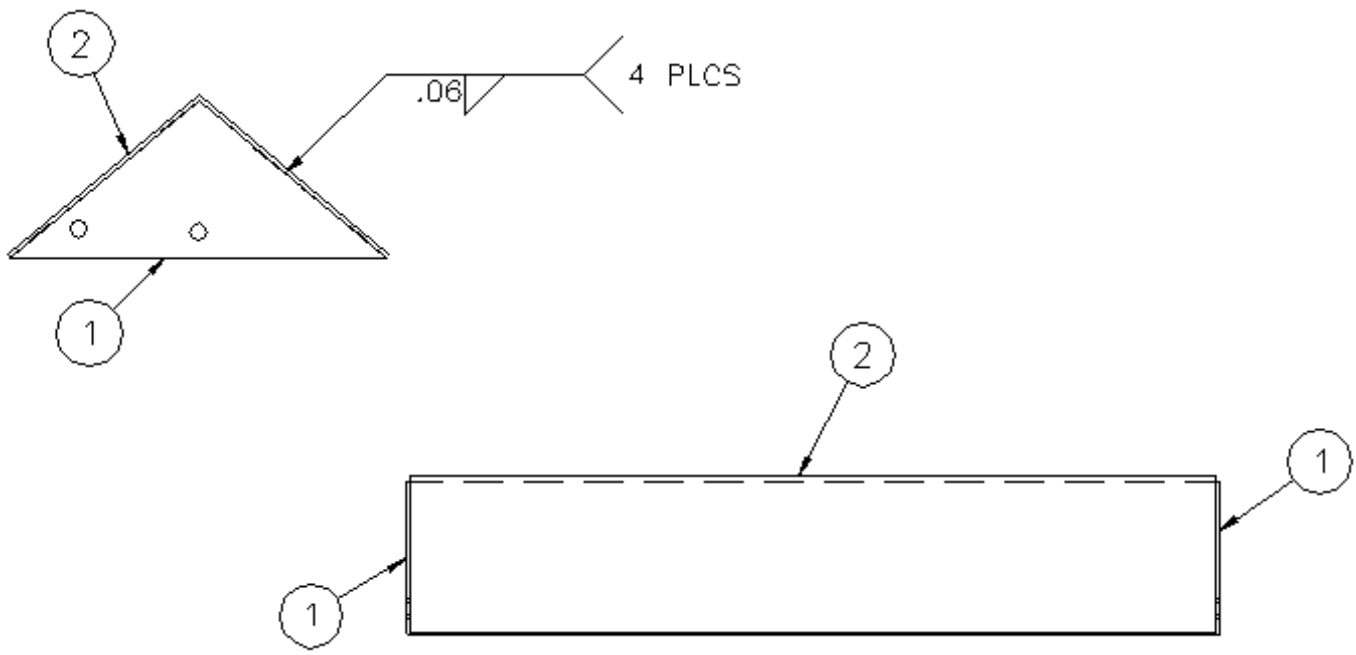
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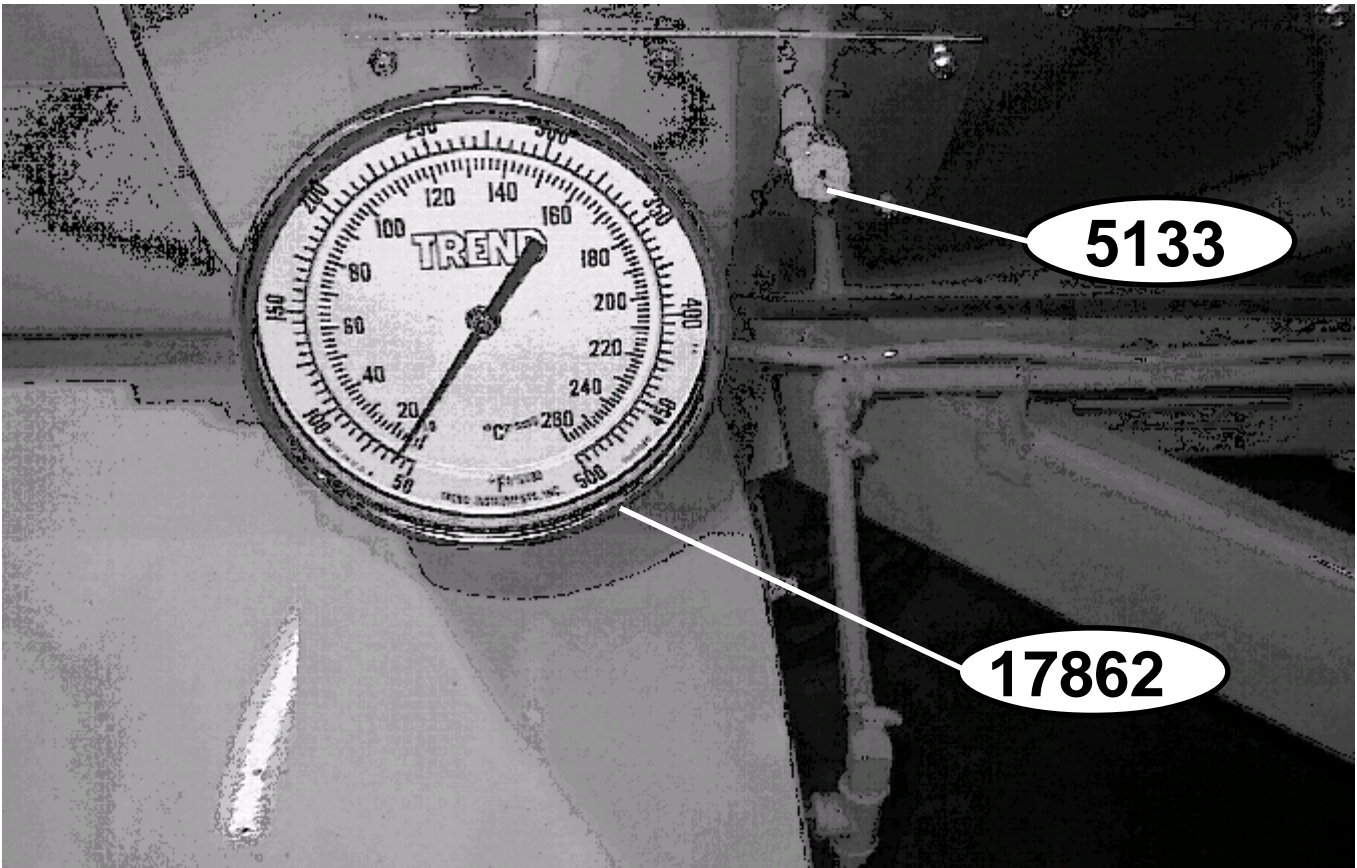
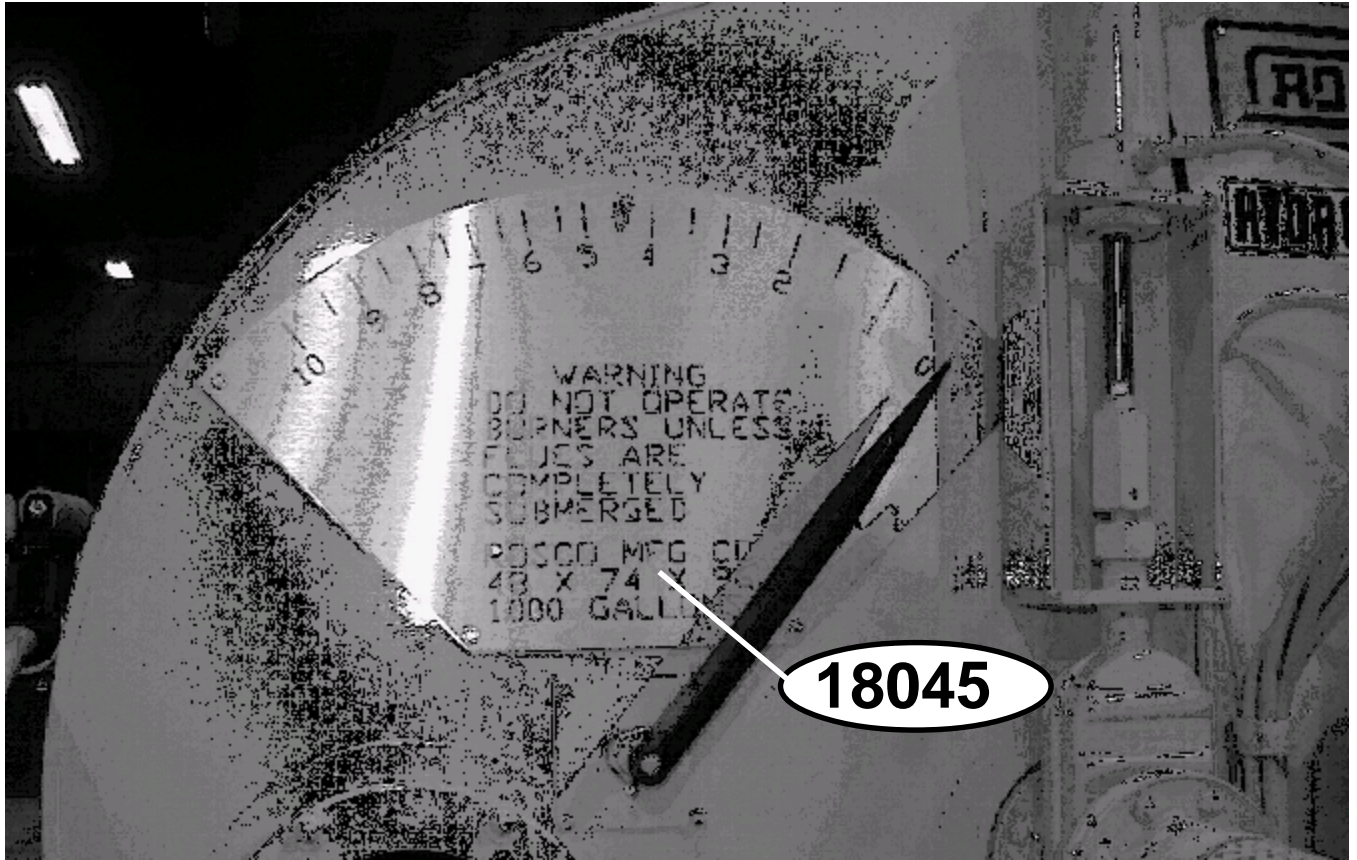
ROSCO RMT

REF: SEE LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
	<b>16070</b>		<b>BAR,PLUG GROUP</b>
	<b>17300</b>		<b>MEASURING STICK,48X74X96,D/F</b>
	<b>17862</b>		<b>DIAL,THERM,50-500 F,GROUP</b>
	<b>18045</b>		<b>CONT GA,REAR,48X74X96,D/F</b>
	<b>18981</b>		<b>VALVE WRENCH/ALIGNMENT TOOL</b>
	<b>5133</b>		<b>THERM,ARMORED,PENCIL,100-600F</b>
	<b>11795-5</b>		<b>STACK ASSEMBLY,50.00</b>
0	11791	2.00	INSIDE END STACK SST
<b>0</b>	<b>11794</b>	<b>1.00</b>	<b>STACK COVER ASSY,SST (See Detail Following)</b>
0	11795-5A	1.00	FRONT STACK
0	11795-5B	1.00	SIDES AND REAR
0	11795C	1.00	BOTTOM,STACK ASSEMBLY
0	11795D	1.00	DIVIDER,STACK ASSEMBLY
0	31935	2.00	NUT,WING, .312-18
	<b>11794</b>		<b>STACK COVER ASSY,SST</b>
1	11792	2.00	END,COVER STACK,SST
2	11793	1.00	TOP,COVER STACK,SST



REF: SEE LIST

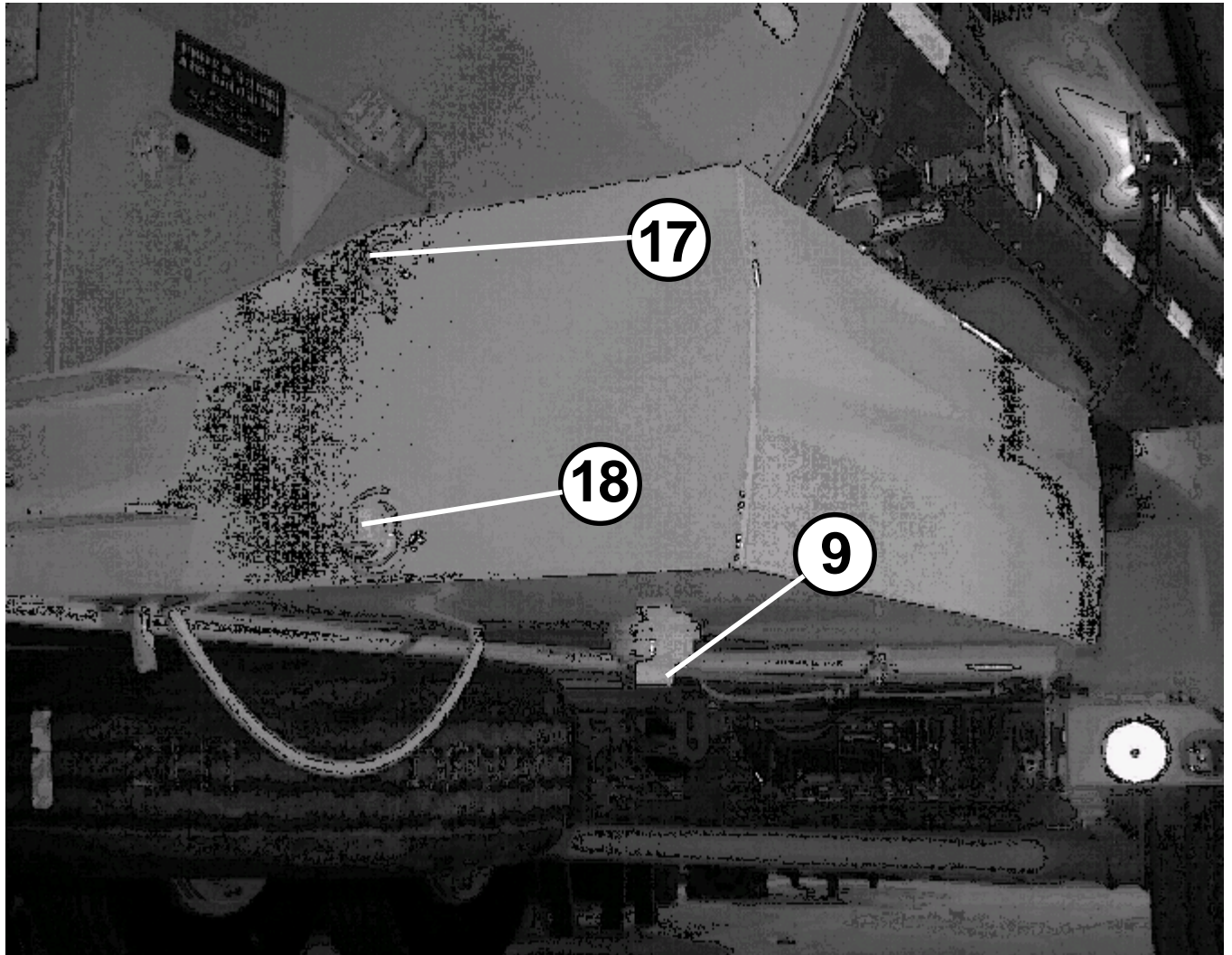


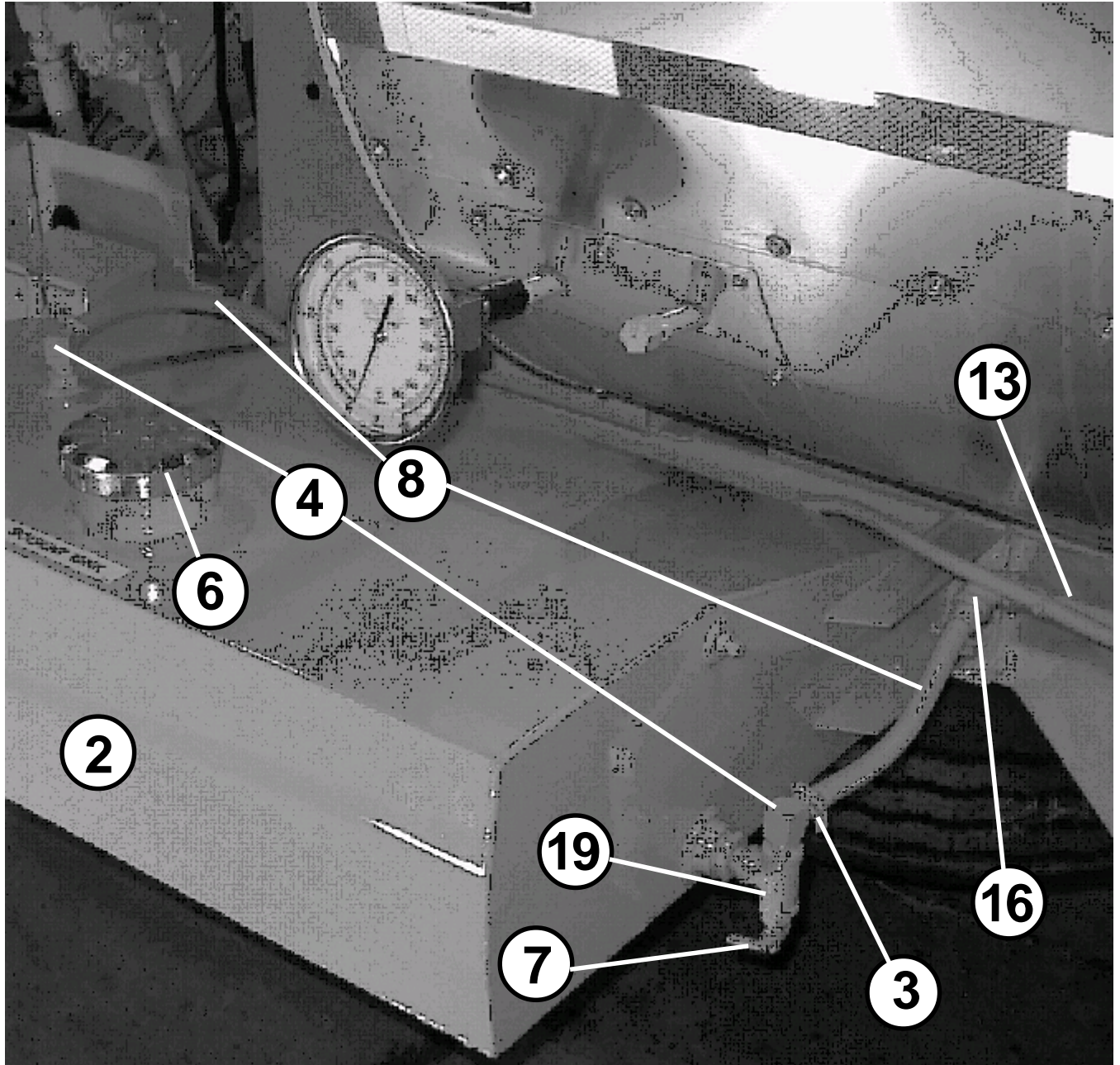
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ITEM	PART NUMBER	QTY	DESCRIPTION
	<b>17934</b>		<b>FLUSH TANK SYSTEM</b>
1	15944	2.00	PLATE,TAPPED
2	21701	1.00	TANK WLDMT,DIESEL
3	33163	5.00	CLAMP,HOSE, .50-.91,WORM,#08
4	33328	4.00	FITT,90 08MP-08HB,CRIMPED
5	35569	1.00	VLV,CHECK,08 NPT,SWING
6	36940	1.00	CAP,FUEL,4.0 NPT,AL,W/GASKET
7	5499	1.00	VLV,DRAIN .25
8	6352	3.00	HOSE,08,PUSH-ON,250
9	70444	1.00	PIPE,PLUG,2.00MP,SQ HD,MI
10	80142	4.00	WASHER,TYPE A PLAIN,.375
11	80162	4.00	WASHER,SPLIT LOCK,.375
12	80219	4.00	CSHH,.375-16X.75,GR5
13	91315	1.00	PIPE,TBE,08X83.00
14	91316	1.00	PIPE,TBE,08X55.00
15	9672	4.00	BRACKET,PIPE,0.50
16	99512	1.00	PIPE,90,08FP,MI
17	99535	2.00	PIPE,PLUG,04MP,SQ HD,MI
18	99539	1.00	PIPE,PLUG,16MP,SQ HD,MI
19	99569	2.00	PIPE,TEE,08FP,MI
20	99596	2.00	PIPE,NIPPLE,08XCLOSE
21	99980	1.00	PIPE,BUSH,08MP-04FP,STL
22	99990	1.00	PIPE,BUSH,16MP-08FP,STL
23	X427	1.00	FITT,STR 08MP-08HB,CRIMPED

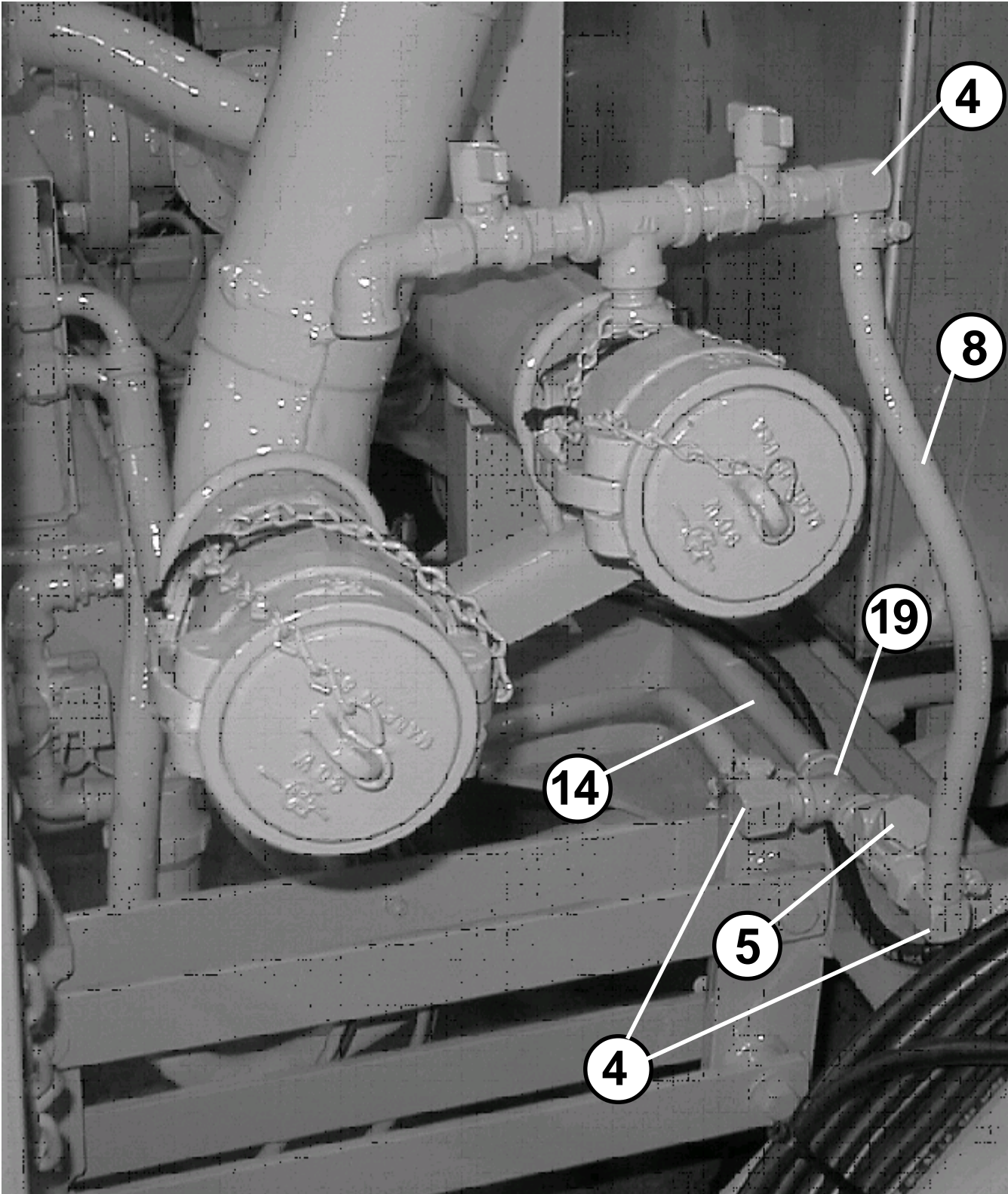
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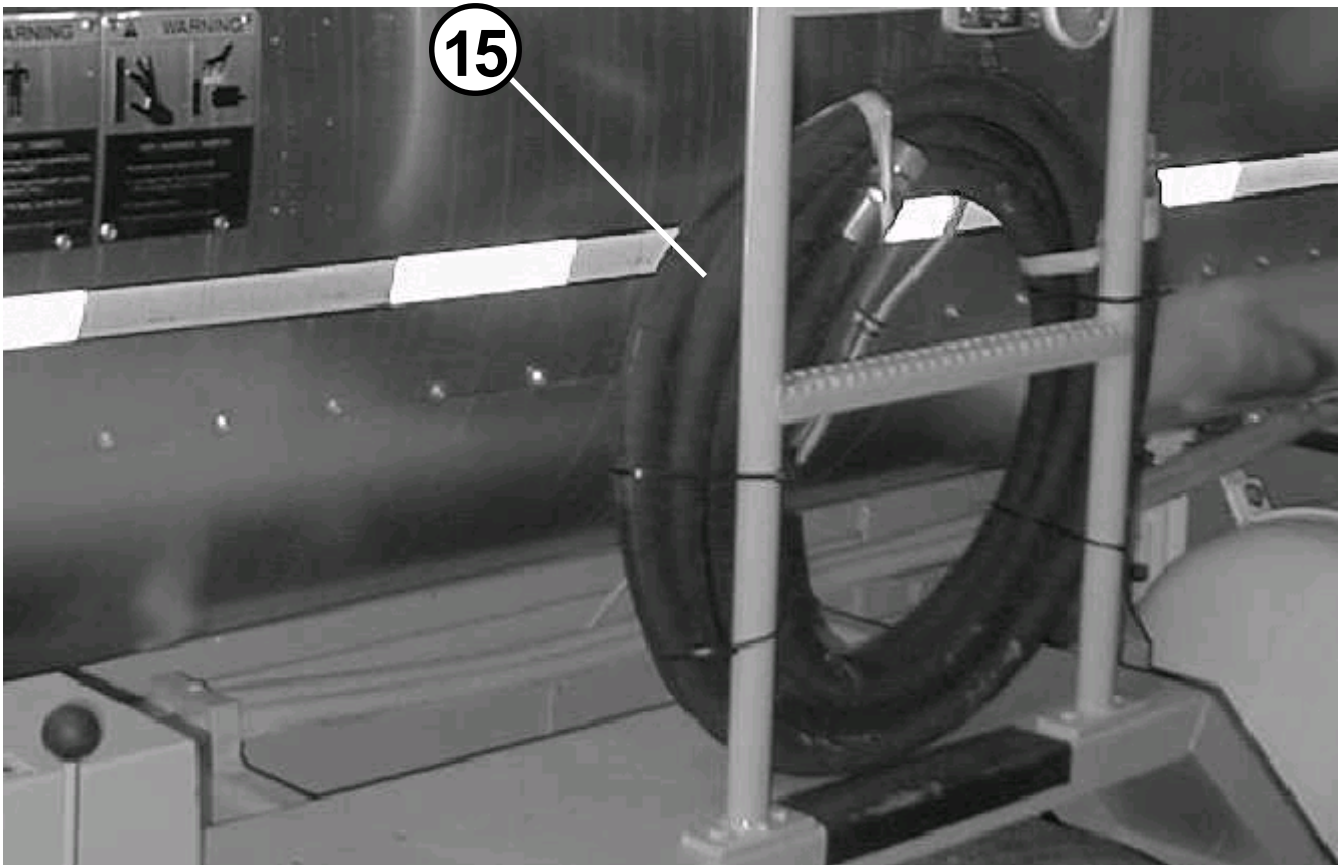


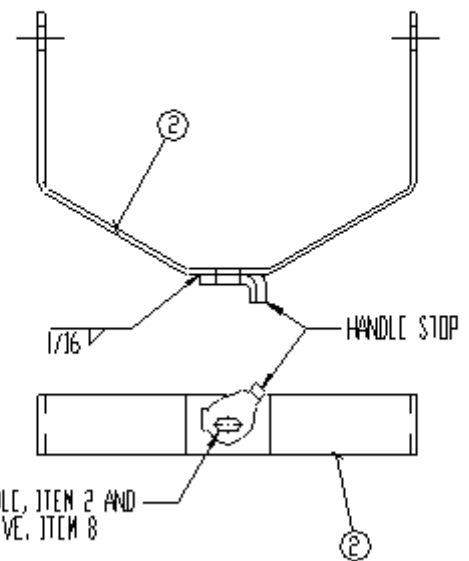
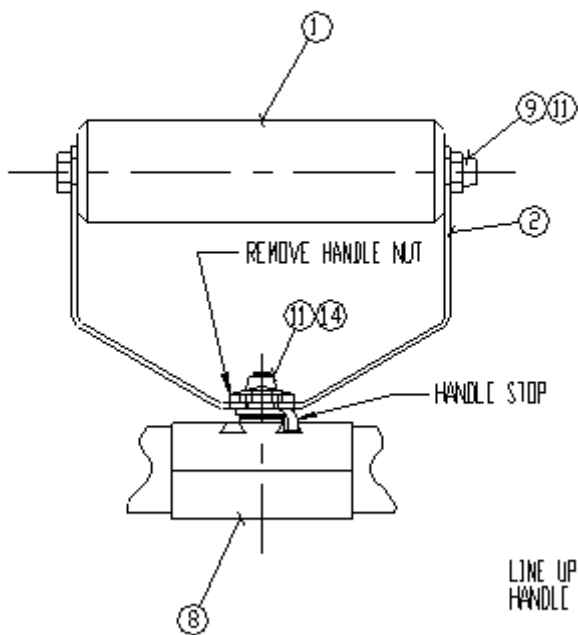
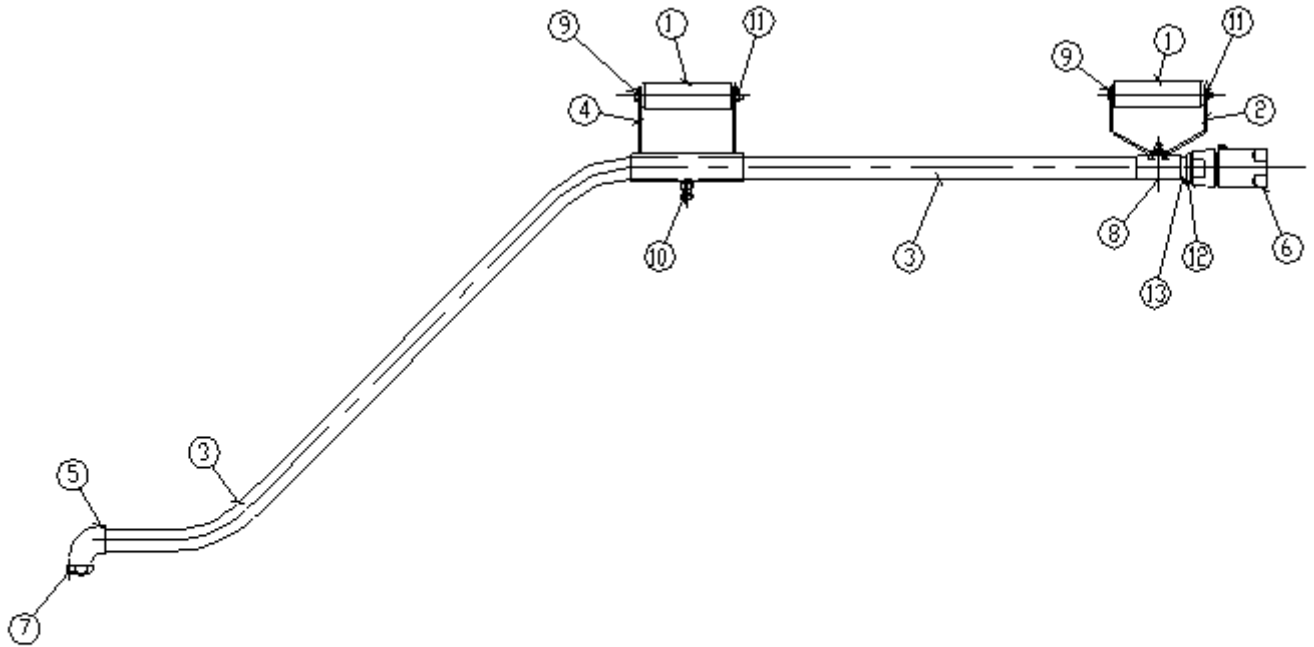
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REF: 18595-1

ITEM	PART NUMBER	QTY	DESCRIPTION
	<b>18595-1</b>	<b>REV. C</b>	<b>HANDSPRAY WAND</b>
1	1557	2.00	HANDLE,HAND SPRAY
2	23489	1.00	BENT HANDLE,BALL VALVE
3	18593	1.00	WAND,HANDSPRAY
4	18597	1.00	HANDLE W/M
5	91158	1.00	PIPE,90,12FP-08FP,GALV
6	37439	1.00	SWIVEL,INLINE,16FP
7	32923	1.00	NOZZLE,#6
8	35832	1.00	VLV,BALL,12 NPT
9	80199	2.00	CSHH,.250-20X5.00,GR5
10	80219	1.00	CSHH,.375-16X.75,GR5
11	80350	3.00	NUT,FLEXLOC,.250-20,FULL,LT
12	91159	1.00	PIPE,BUSH,16MP-12FP,GALV,MI
13	99600	1.00	PIPE,NIPPLE,12XCLOSE
14	35480	0.01	PENETRATING THREAD LOCKER 290
15	5112R	25.00	HOSE,RUBBER,16X25 FT,M END,





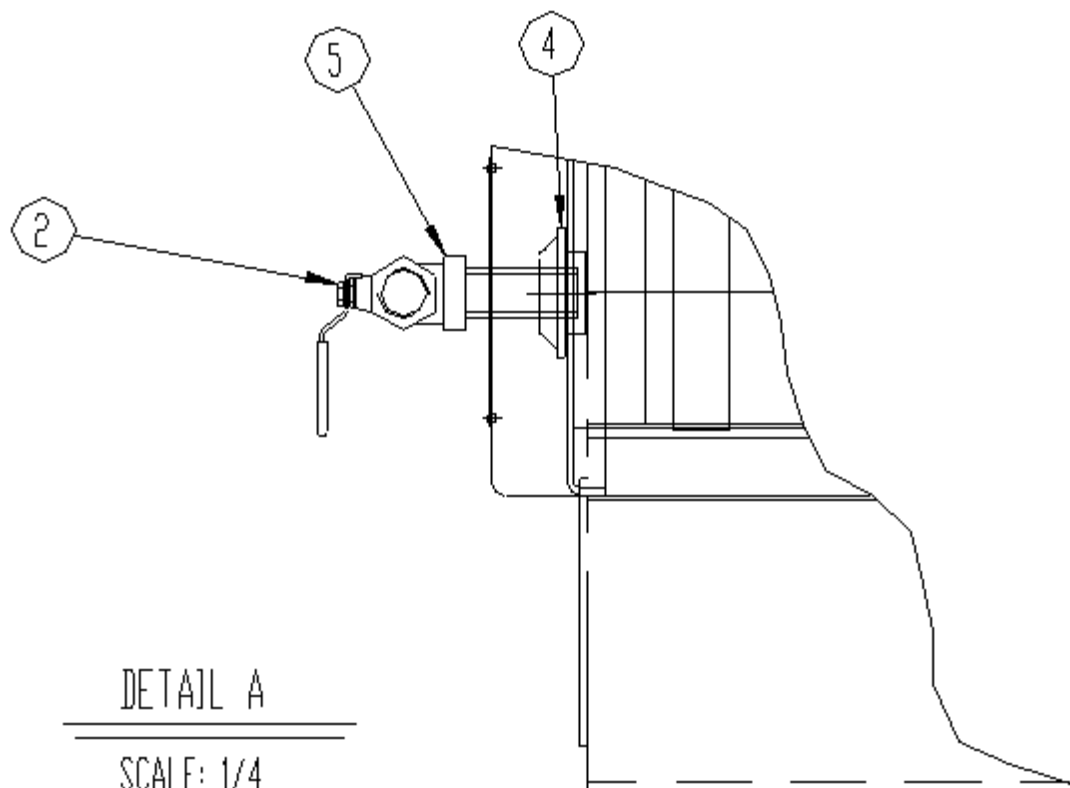
VALVE REWORK DETAIL

REF: 22468

ITEM	PART NUMBER	QTY	DESCRIPTION
	<b>22468</b>		<b>SAMPLING VALVE,FRONT HEAD</b>
2	34402	1.00	VALVE,BALL,1.00,BRONZE
4	71936	REF	FLANGE,WELD,1 NPT
5	99528	1.00	PIPE,90,16MP-16FP,MI

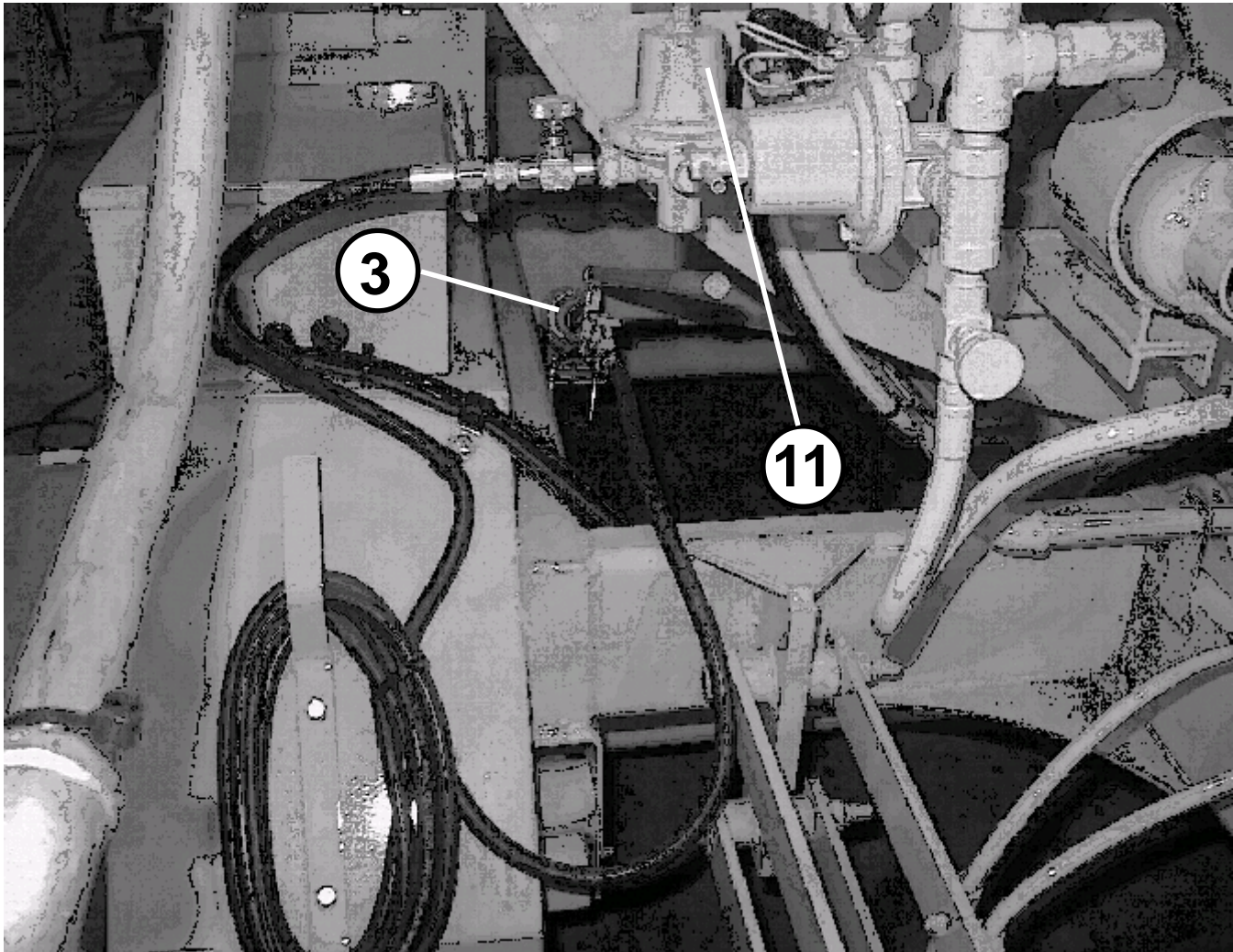
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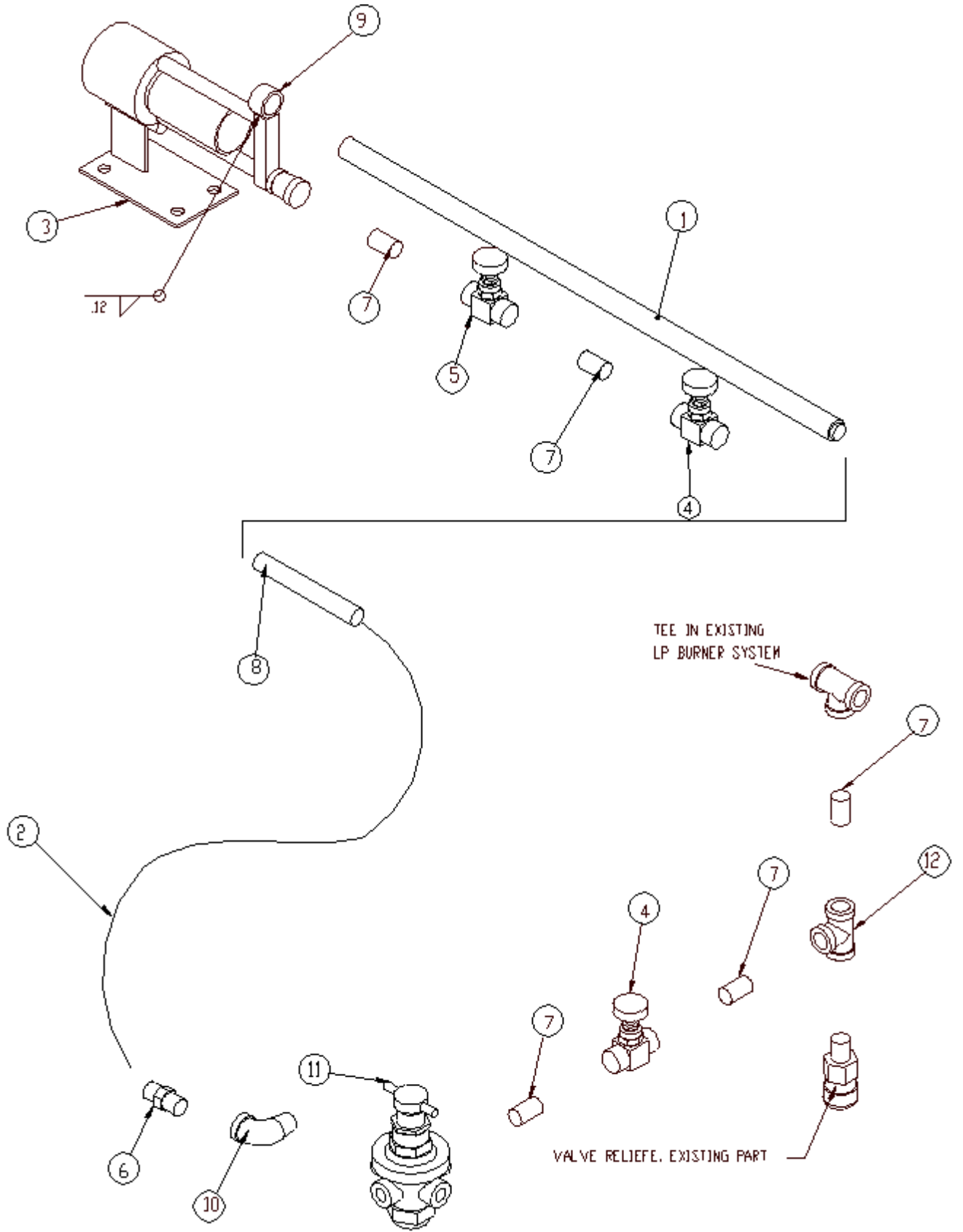
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REF: 25666

ITEM	PART NUMBER	QTY	DESCRIPTION
<b>25666</b>			<b>PORTABLE TORCH,LPG</b>
1	12447	1.00	PIPE W/SLUG THERM TUBE AMC ENG
2	32879	1.00	HOSE,04X180,04FPX-04RE,350
3	32958	1.00	BURNER J1 LPG LIQUID
4	6120	2.00	VLV,NEEDLE,04 FEMALE,NPT
5	6297	1.00	VLV,PILOT
6	6298	1.00	FITT,STR 04MP-09MPF,LH LP GAS
7	90744	5.00	PIPE,NIPPLE,04XCLOSE,300#
8	90749	1.00	PIPE,NIPPLE,04X4.00,300#
9	90897	1.00	PIPE,HALF CPLG,06FP,300#
10	90763	1.00	PIPE,90,04FP-04MP,300#
11	6119	1.00	REGULATOR,LPG
12	90772	1.00	PIPE,TEE,04FP,300#

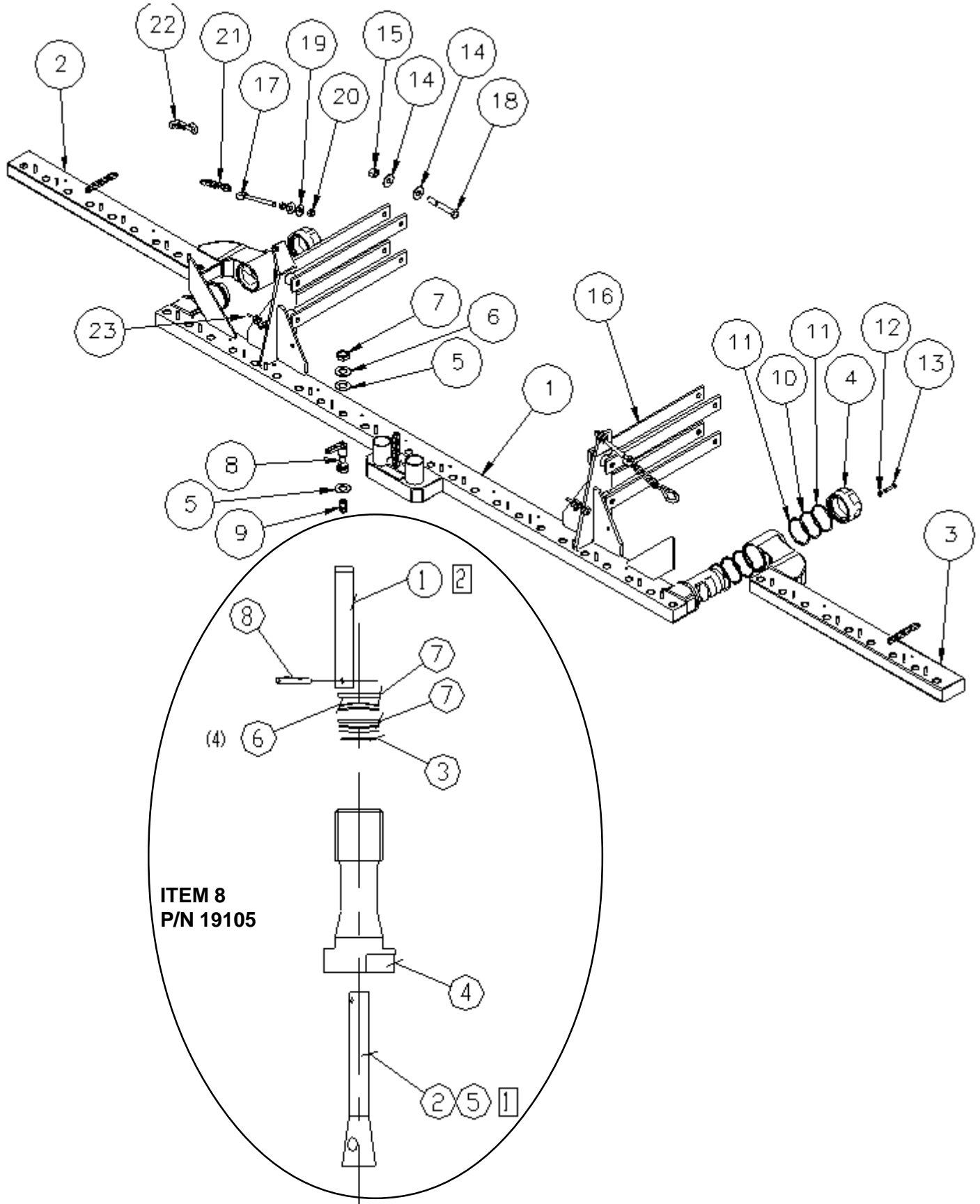




REF: 28097

ITEM	PART NUMBER	QTY	DESCRIPTION
<b>28097</b>			<b>SPRAYBAR ASSEMBLY,14 FT,RMT</b>
1	28096	1.00	SPRAYBAR,W/M,CENTER,8 FT
2	28093	1.00	SPRAYBAR W/M,WING,LH,RMT
3	28089	1.00	SPRAYBAR,W/M,WING,RH,RMT
4	8367	2.00	CASTING,CAP,SUMP
5	35881	84.00	GASKET,ASPHALT SPRAY VALVE
6	80706	42.00	WASHER,SAE PLAIN,1.000
7	80098	42.00	NUT,HEX,JAM,1.000-12
<b>8</b>	<b>19105</b>	<b>42.00</b>	<b>EZ-1 SPRAY VALVE ASSEMBLY (See Detail Following)</b>
9	32918	42.00	NOZZLE #1
10	8393	4.00	WASHER
11	8394	8.00	GASKET,FOLD SECT,.12X3.38X3.75
12	80038	2.00	NUT,HEX,.375-16
13	80317	2.00	SET S,SQ,KCUP,.375-16X1.50
14	80146	16.00	WASHER,TYPE A PLAIN,.625
15	80356	8.00	NUT,FLEXLOC,.625-11,FULL,LT
16	25948	8.00	LINK,SUPPORT,BOTTOM
17	R57	2.00	EYE BOLT,.500-13X5.25X.62ID
18	71682	8.00	CSHH,.625-11X4.50,GR5
19	80144	4.00	WASHER,TYPE A PLAIN,.500
20	80040	4.00	NUT,HEX,.500-13
21	70395-27	2.00	CHAIN,.250 X 21 LINKS
22	33070	2.00	CAP SNAP .50
23	37187	2.00	RING,SPLIT,2.02 ID X .18,ZINC CTD
<b>19105</b>			<b>EZ-1 SPRAY VALVE ASSEMBLY</b>
1	18733	1.00	ACTUATOR ARM,SPRAY VALVE
2	36222	.01	LUBRICANT, ANTI-SEIZE, 8 OZ
3	35099	1.00	SHIM,STL .500IDX.750ODX.020
4	35887	1.00	BODY,OUTER,SPRAY VALVE
5	35888	1.00	BODY,INNER,SPRAY VALVE
6	35973	4.00	WASHER,CURVED SPRING,.462 ID
7	81061	2.00	WASHER,TYPE B PLAIN,.438,NAR
8	80765	1.00	ROLL PIN,.125X.75

REF: 28097



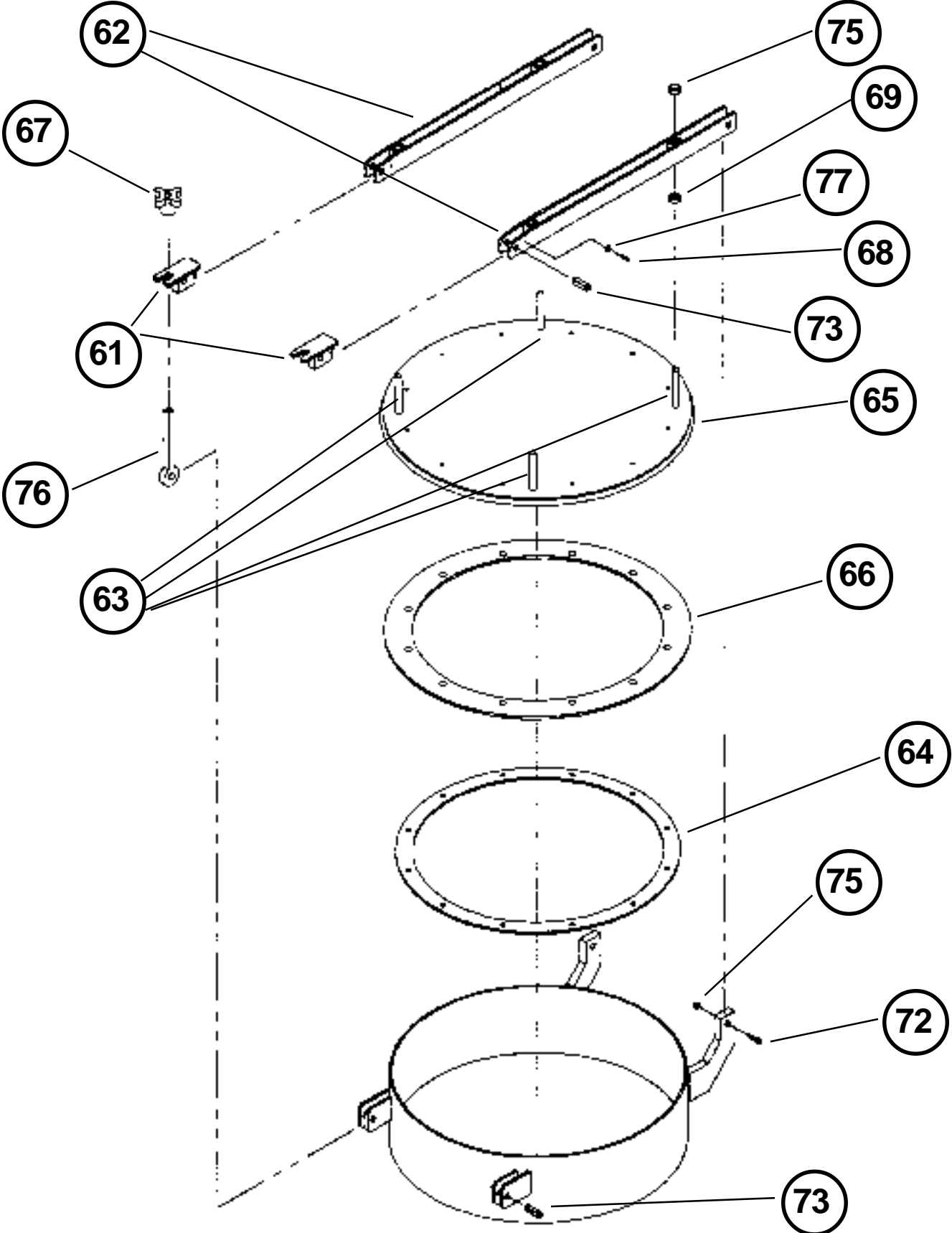
REF: 28146

ITEM	PART NUMBER	QTY	DESCRIPTION
<b>28146</b>			<b>TANK W/M,48X74X96,D/F RMT</b>
61	20162	2.00	LATCH W/M,MANHOLE COVER
62	20165	2.00	CROSS BAR W/M,MANHOLE COVER
63	20166	4.00	THREADED ROD,.500-13X3.25
64	20167	1.00	RETAINER,MANHOLE COVER
65	20168	1.00	MANHOLE COVER W/M
66	36062	1.00	GASKET,MANHOLE COVER
67	6066	2.00	NUT,WING,.50-13
68	71716	2.00	MACH SCR,PH,#10-24X.75
69	80076	4.00	NUT,HEX,JAM,.500-13
70	80140	12.00	WASHER,TYPE A PLAIN,.250
71	80185	12.00	CSHH,.250-20X1.00,GR5
72	80255	2.00	CSHH,.500-13X2.00,GR5
73	80348	4.00	ROLL PIN,.500X1.50
74	80350	12.00	NUT,FLEXLOC,.250-20,FULL,LT
75	80354	6.00	NUT,FLEXLOC,.500-13,FULL,LT
76	8530	2.00	EYE BOLT,LOCKING,MANHOLE COVER
77	871071601	2.00	WASHER,SPLIT LOCK,#10
81	71936	2.00	FLANGE,WELD,1NPT
84	23501	1.00	PAD,ROLL OVER
85	81156	2.00	CSHH,.500-13X1.75,SST
86	81157	2.00	CSHH,.500-13X2.25,NON PLATED
87	91351	2.00	PIPE,TBE,06X29.88
88	99477	2.00	PIPE,CAP,06FP STL
89	23525	1.00	GUSSET,FLOAT ROD
90	16158	4.00	ANGLE TANK MT

**21282**

**SCREEN INSTL,FULL MANHOLE**

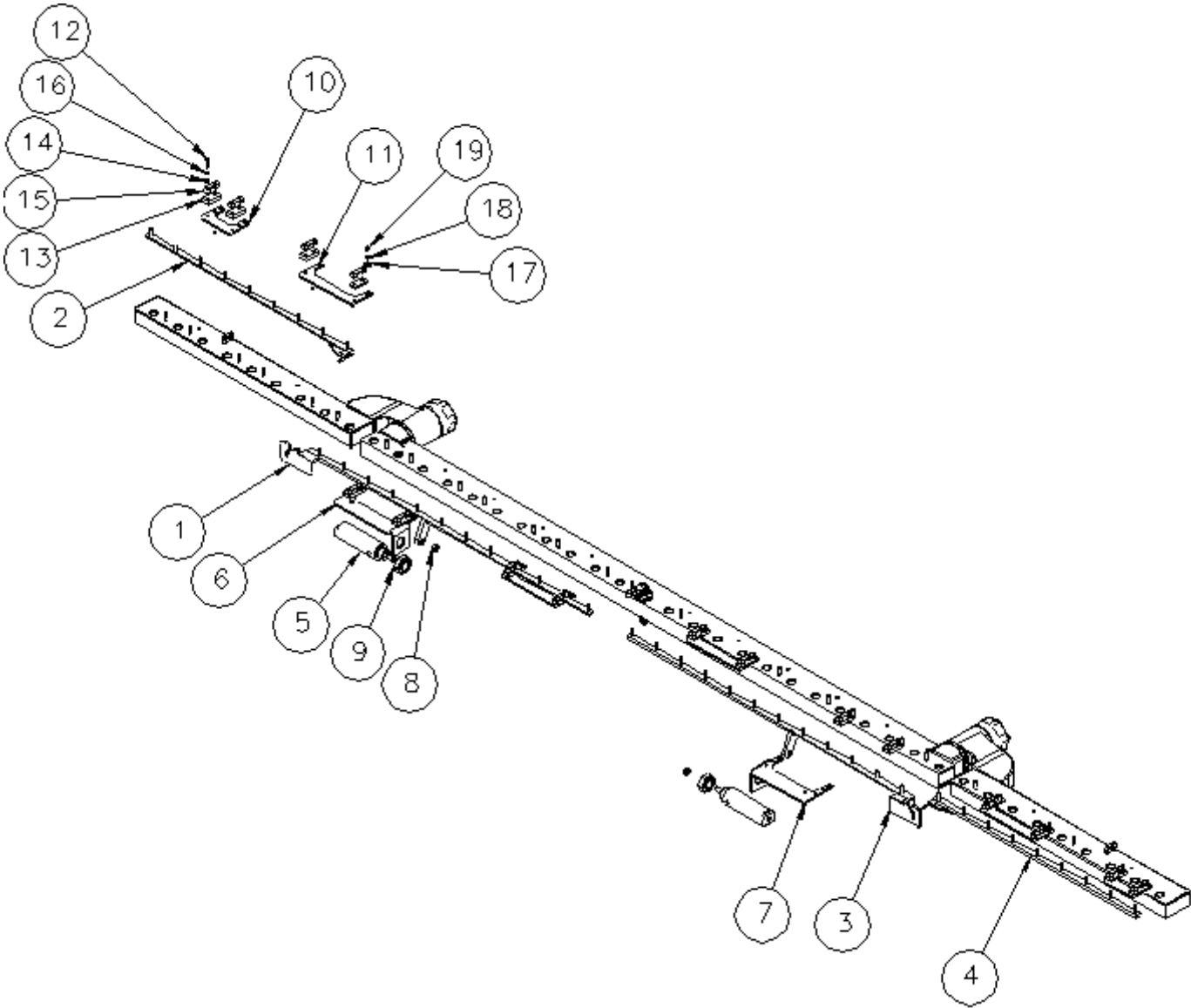




REF: 28255

ITEM	PART NUMBER	QTY	DESCRIPTION
	<b>28255</b>	<b>REV. 0</b>	<b>CONT GROUP,SPRAYBAR</b>
1	28108	1.00	SLIDE BAR W/M,CENTER,LH 7 FT
2	28110	1.00	SLIDE BAR W/M,END SECT LH 7 FT
3	28111	1.00	SLIDE BAR W/M,CENTER,RH 7 FT
4	28112	1.00	SLIDE BAR W/M,END SECT,RH 7 FT
5	37364	2.00	CYL,2.00X3.00
6	23147	1.00	BRACKET,2' CONTROL,LH
7	23151	1.00	BRACKET,2' CONTROL,RH
8	80093	2.00	NUT,HEX,JAM, .500-20
9	80100	2.00	NUT,HEX,JAM,1.250-12
10	23332	2.00	BRACKET,1' EXTENSION
11	23152	4.00	BRACKET,2' CONT,W/O CYLINDER
12	81004	32.00	MACH SCR,HH,#10-24X1.25
13	23150	16.00	SPACER,SLIDE BAR
14	80995	32.00	WASHER,TYPE A PLAIN,#10
15	23207	16.00	CLIP,SLIDE BAR
16	871071601	32.00	WASHER,SPLIT LOCK,#10
17	80141	16.00	WASHER,TYPE A PLAIN,.312
18	80161	16.00	WASHER,SPLIT LOCK,.312
19	80037	16.00	NUT,HEX,.312-18

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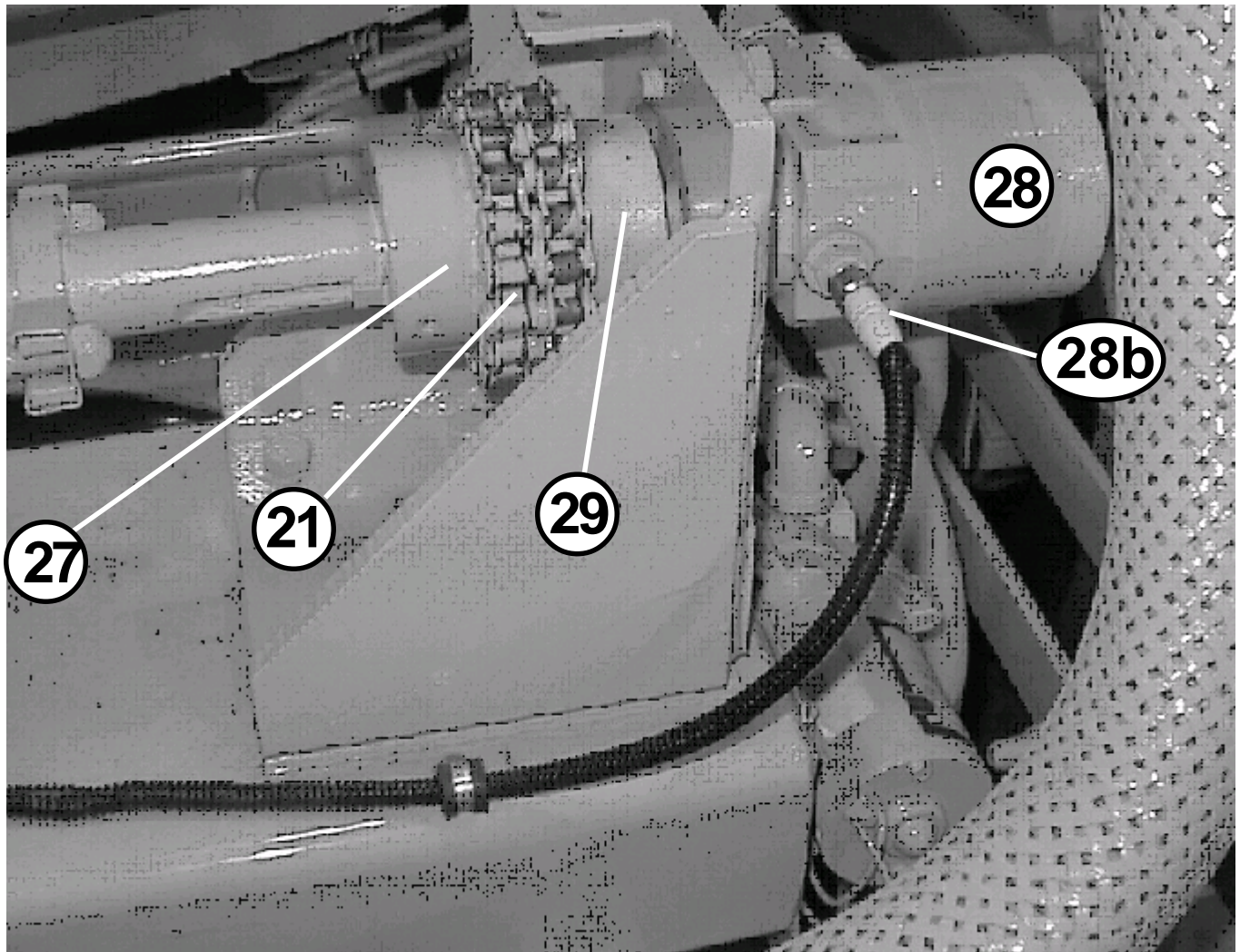


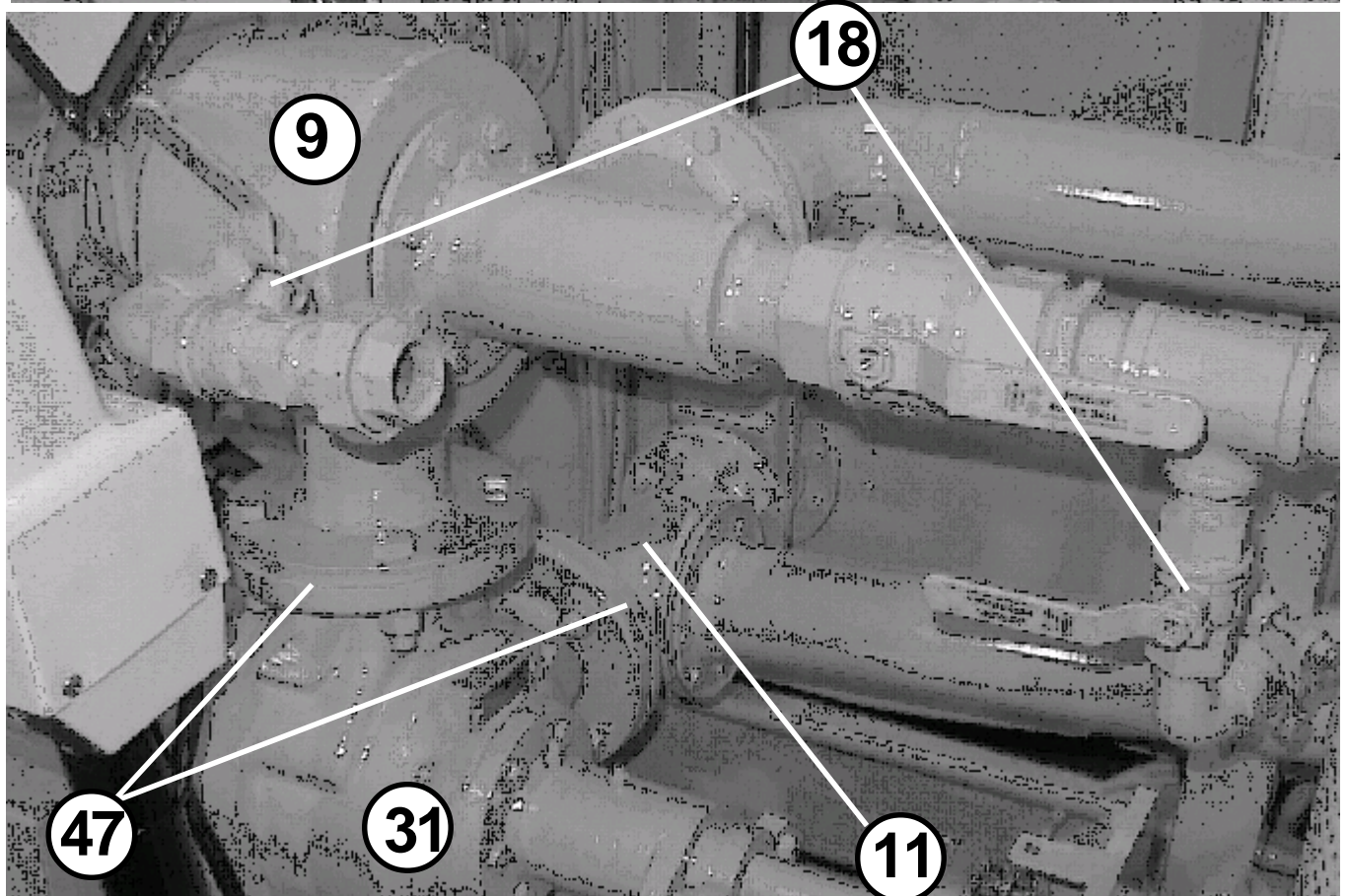
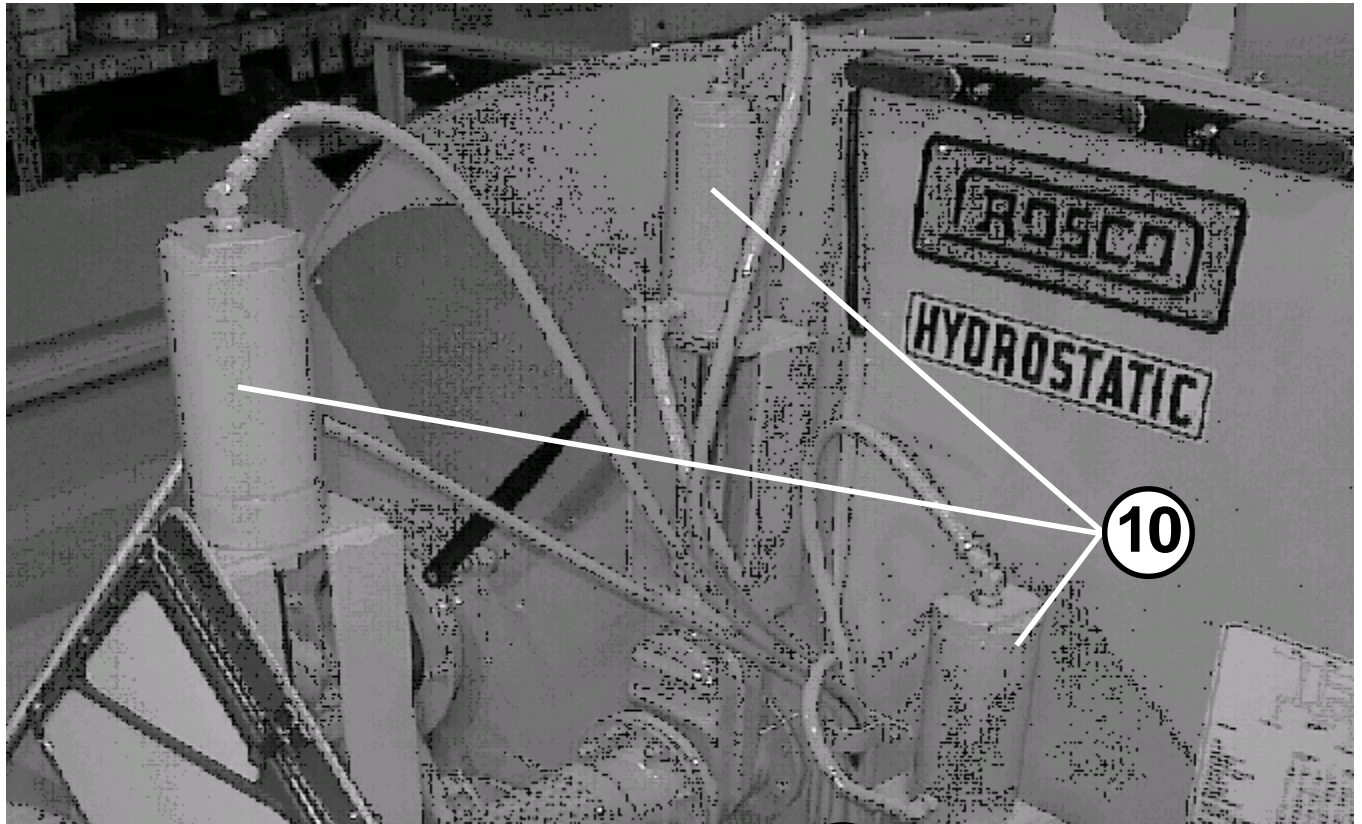
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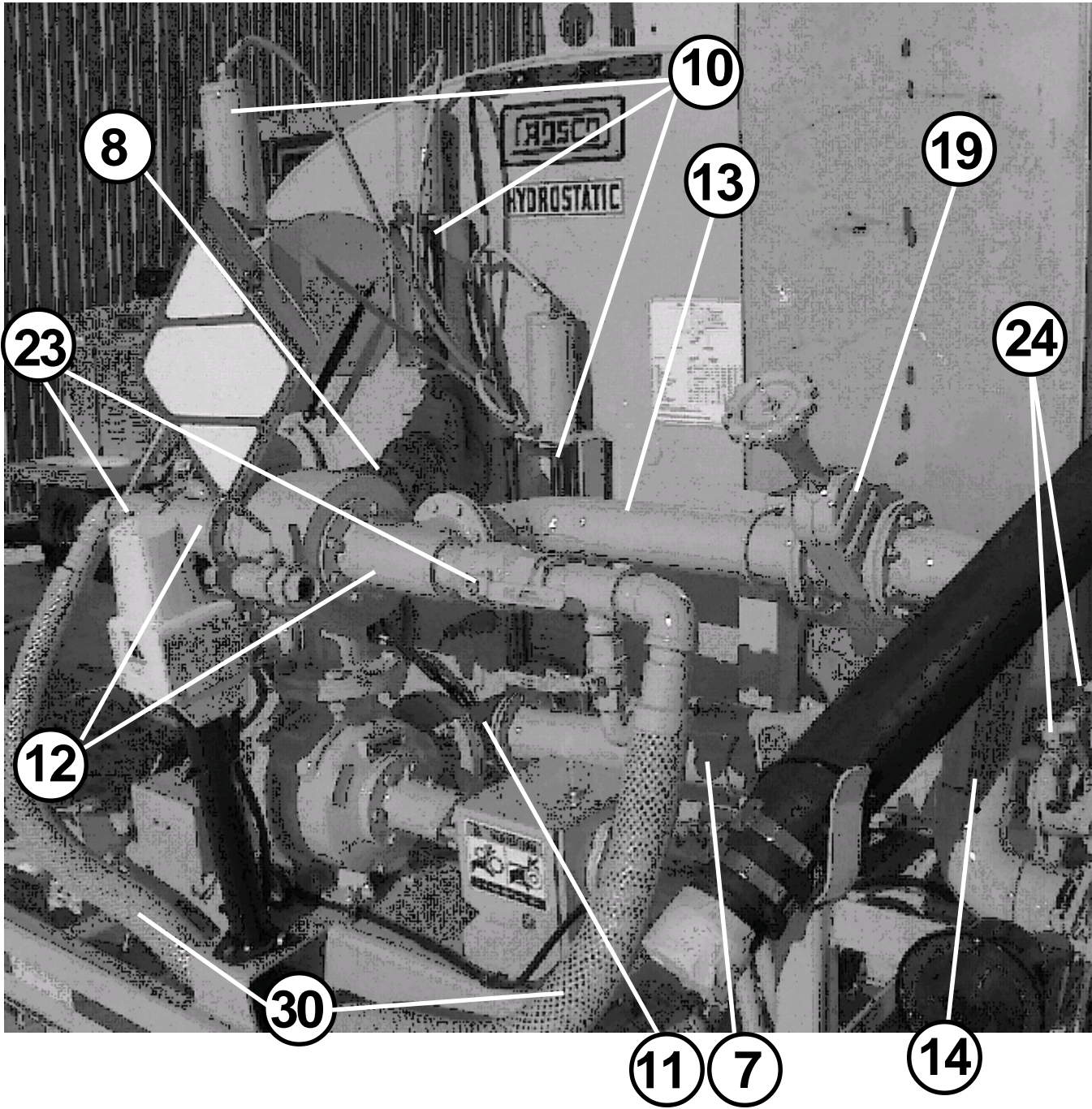
ITEM	PART NUMBER	QTY	DESCRIPTION
	<b>28260</b>	<b>REV. A</b>	<b>PIPING GROUP</b>
1	15787	4.00	SHIM,MOTOR MOUNT
2	15787	4.00	SHIM,MOTOR MOUNT
3	15855	1.00	BRACKET,TRANSFER LINE SUPPORT
4	16460	1.00	GUARD
5	17374	1.00	BAR,LOAD LINE SUPPORT
6	17376	1.00	SUPPORT,W/M,LOAD & TRANSFER
7	21808	1.00	WELDMENT,LOAD LINE,MODIFIED
8	28166	1.00	HOSE,FLEX,MET,3.0 X 13.75
9	28183	1.00	MANIFOLD,RETURN,W/M
<b>10</b>	<b>28184</b>	<b>3.00</b>	<b>VALVE ASSY,TANK,3.00 (See Detail Following)</b>
11	28186	1.00	LOAD TEE,W/M
12	28190	2.00	DISCHARGE TEE,W/M
13	28196	1.00	UPPER TRANSFER LINE,W/M
14	28197	1.00	LOWER TRANSFER LINE,W/M
15	28266	1.00	SUCTION LINE,W/M,RMT
16	28275	1.00	MOTOR MOUNT,RMT
17	28519	1.00	SCREEN,WLDMT,CONE
18	34402	2.00	VLV,BALL,1.00,BRONZE
19	34973	1.00	VLV,GATE,3.00,FLANGED
20	34981	13.00	GASKET,3" FLANGE
21	34987	1.00	COUPLING CHAIN W/ CONN. PIN
22	35089	4.00	U-BOLT,.375-16,3.62IW,4.62IL
23	35354	2.00	VLV,BALL,2.00,BRONZE
24	36622	2.00	VLV,BALL,08 NPT,T HANDLE
25	36863	2.00	CLAMP,HOSE,#K-24 KNOX
26	36999	2.00	HOSE,1.00 ID, HOT ASPHALT
27	37203	1.00	HALF COUPLING,1-7/16 SHAFT
28	38780	1.00	MOTOR,HYD,LSHT,4.9 CU.IN.
28a	38780-01		SENSOR,SPEED
28b	38780-02		PLUG,4 PIN,2 MTRS,OIL RESIST
29	38818	1.00	COUPLING,HALF,1.00 SHAFT W/1/4
30	38829	2.00	HOSE,2.00X50,FLEX,METAL,FEM
<b>31</b>	<b>4165-12A</b>	<b>1.00</b>	<b>PUMP,5-3325-13210502 W/RELIEF (See Detail Following)</b>
32	6289	2.00	FITT,QD 3.00F-3.00FP,BRASS
33	6290	2.00	FITT,QD 3.00 PLUG
34	70036	2.00	FITT,STR 16MP-16HB,CRIMPED
35	70452	1.00	KEY,SQ,.375X2
36	80038	64.00	NUT,HEX,.375-16
37	80042	8.00	NUT,HEX,.625-11
38	80142	16.00	WASHER,TYPE A PLAIN,.375
39	80162	104.00	WASHER,SPLIT LOCK,.375
40	80166	8.00	WASHER,SPLIT LOCK,.625
41	80219	48.00	CSHH,.375-16X.75,GR5
42	80221	56.00	CSHH,.375-16X1.00,GR5
43	80224	2.00	CSHH,.375-16X1.25,GR5

REF: 28260

ITEM	PART NUMBER	QTY	DESCRIPTION
44	80226	2.00	CSHH,.375-16X1.50,GR5
45	80283	8.00	CSHH,.625-11X2,GR5
46	80352	12.00	NUT,FLEXLOC,.375-16,FULL,LT
47	911	2.00	GASKET,3.00 COMPANION FLANGE
48	99245	2.00	PIPE,BUSH,2.00MP-1.50FP,MI
49	99270	2.00	PIPE,90,1.50FP,MI
50	99526	1.00	PIPE,90,08MP-O8FP,MI
51	99528	3.00	PIPE,90,16MP-16FP,MI
52	99539	2.00	PIPE,PLUG,16MP,SQ HD,MI
53	99569	1.00	PIPE,TEE,08FP,MI
54	99589	1.00	PIPE,UNION,16FP,MI
55	99596	3.00	PIPE,NIPPLE,08XCLOSE
56	99606	2.00	PIPE,NIPPLE,16XCLOSE
57	99737	5.00	PIPE,NIPPLE,1.50X2.00
58	99861	1.00	PIPE,TEE,1.5FP-1.5FP-16FP,MI



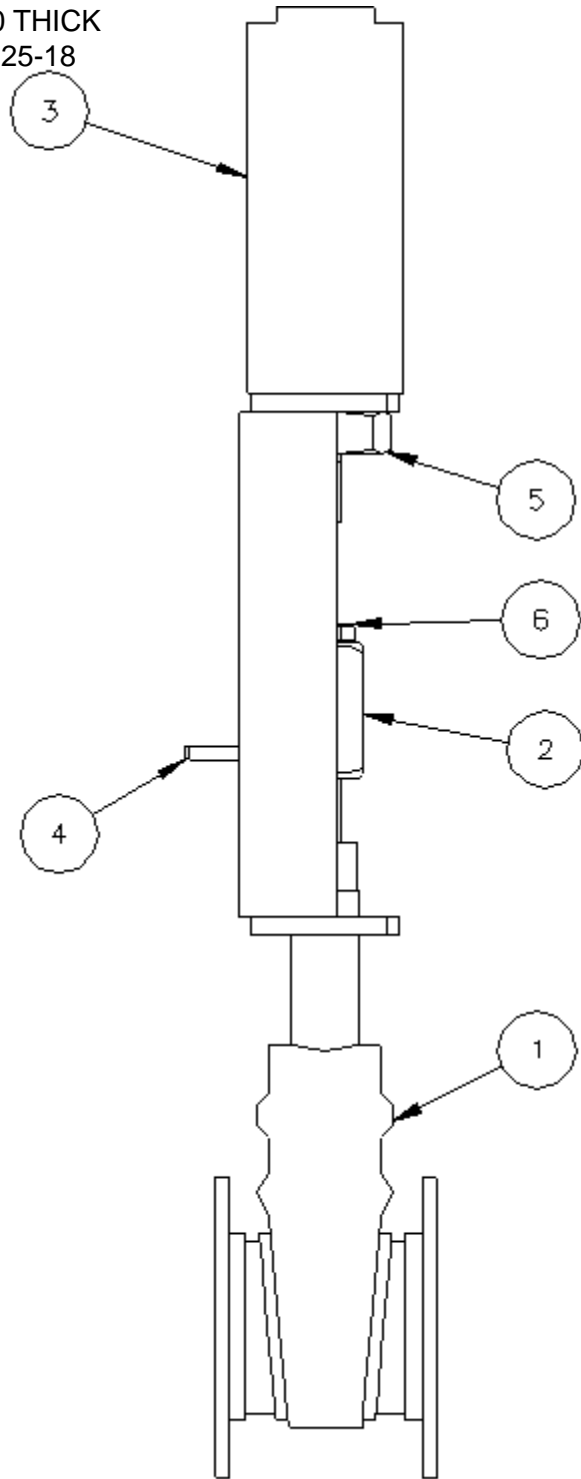




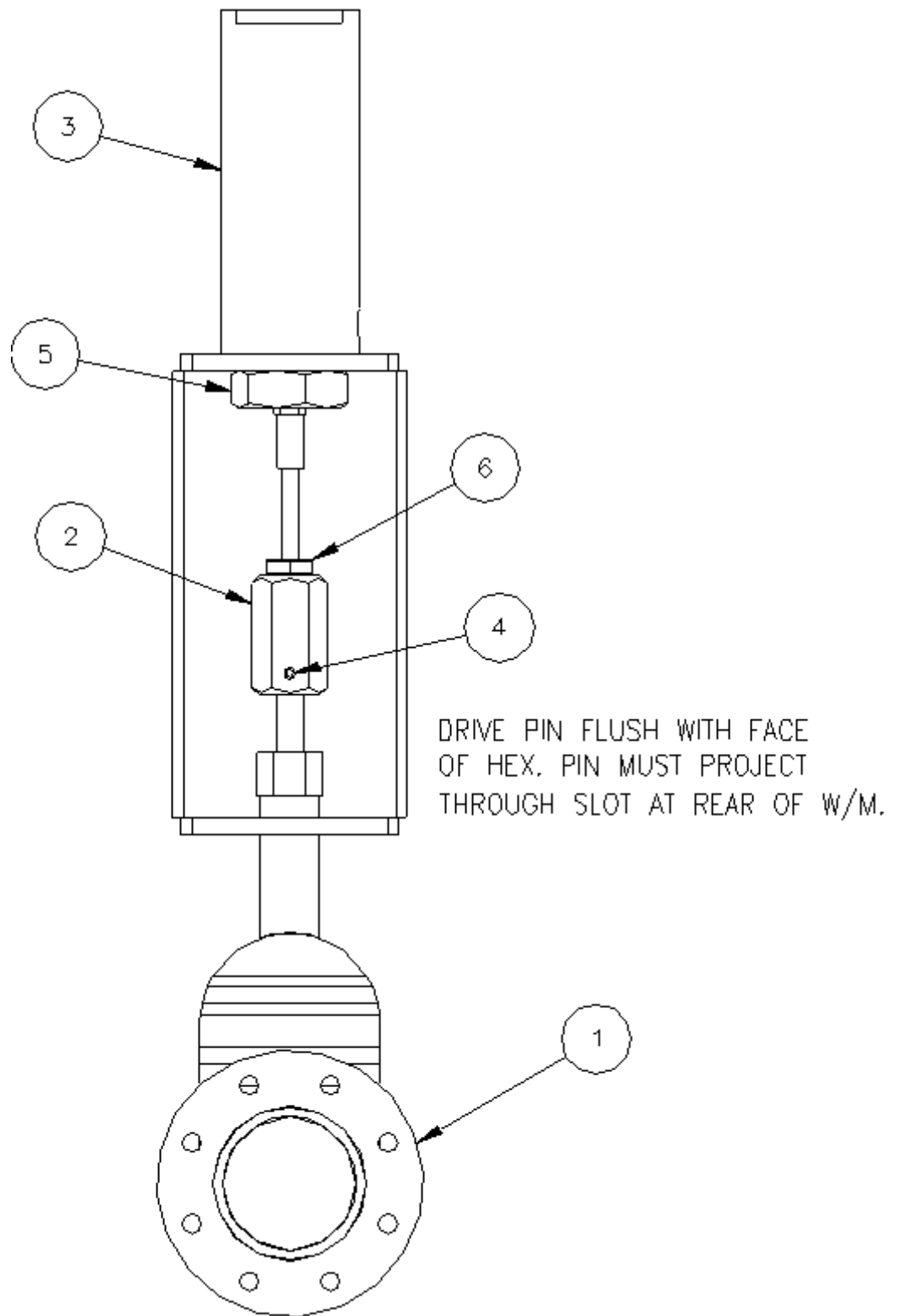
REF: 28184

ITEM	PART NUMBER	QTY	DESCRIPTION
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<b>28184</b>			<b>VALVE ASSEMBLY, TANK, 3.00</b>
1	28182	1.00	VALVE ASSY, TANK, 3.00
2	28185	1.00	CONNECTOR, TANK VALVE
3	35040	1.00	CYL, 3.00X4.0, 250PSI, 9.25
4	80345	1.00	ROLL PIN, .250X1.50
5	35041	1.00	NUT, 1.500-12, .50 THICK
6	80095	1.00	NUT, HEX, JAM, .625-18



REF: 28184

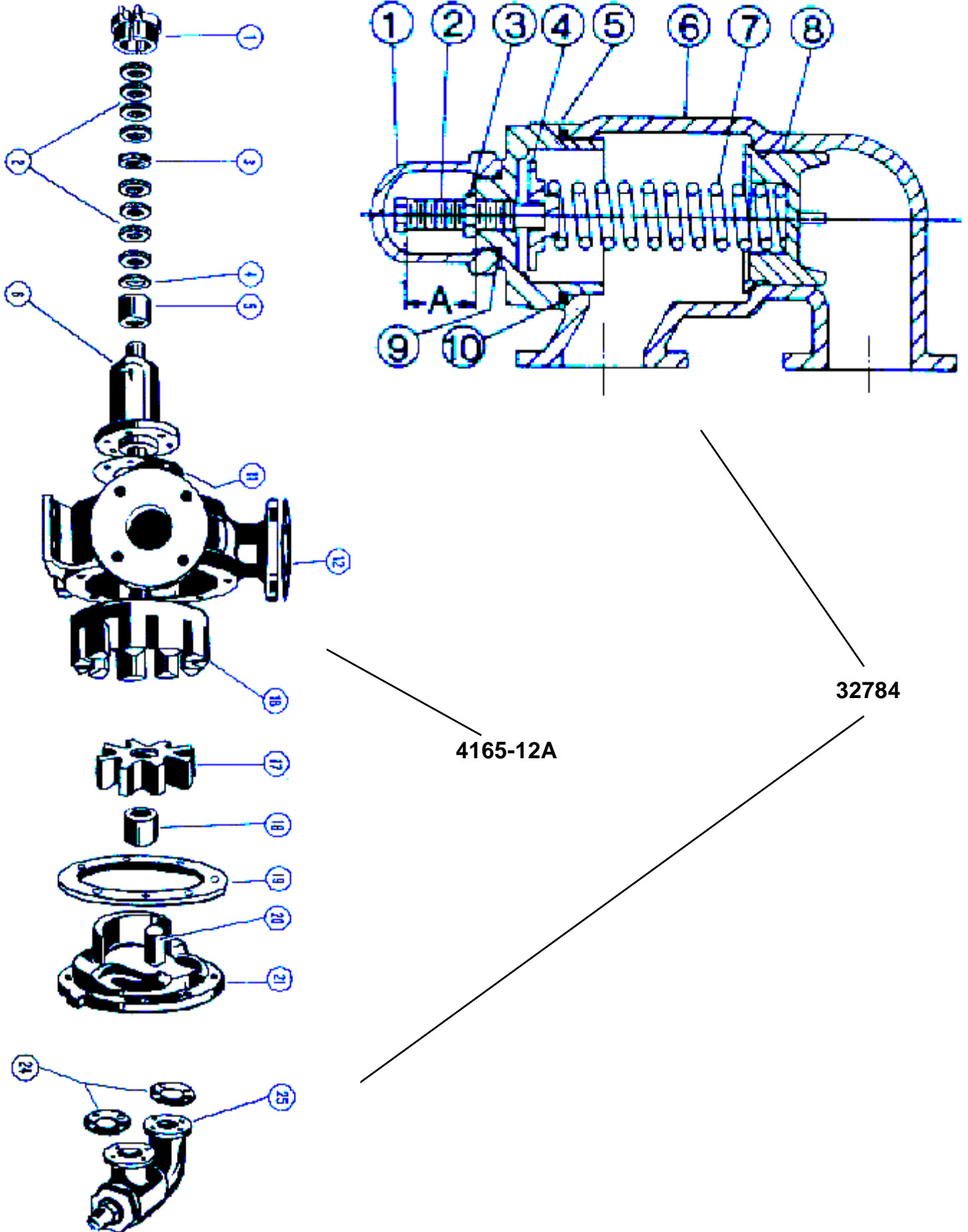


REF: 4165-12A,32784

ITEM	PART NUMBER	QTY	DESCRIPTION
<b>4165-12A</b>			<b>PUMP,5-3325-13210502 W/RELIEF</b>
1	5148	1.00	GLAND,PACKING, 2-524-013-100
2	6035	8.00	PACKING,.375 SQ
3	6036	1.00	RING,LANTERN
4	4165-12A-01	1.00	WASHER,PACKING RETAINER,PUMP
5	5166	1.00	BUSHING
6	32165	1.00	SLEEVE & BUSHING
11	6039	1.00	GASKET
12	911	2.00	GASKET,3.00 COMPANION FLANGE
16	6041	1.00	ROTOR & SHAFT
17	6043	1.00	IDLER & BUSHING
18	6044	1.00	BUSHING
19	5161	1.00	GASKET
20	6045	1.00	PIN
21	6048	1.00	HEAD
24	36001	2.00	GASKET,RELIEF VALVE
<b>25</b>	<b>32784</b>	<b>1.00</b>	<b>VLV,RELIEF,VIKING (See Detail Following)</b>

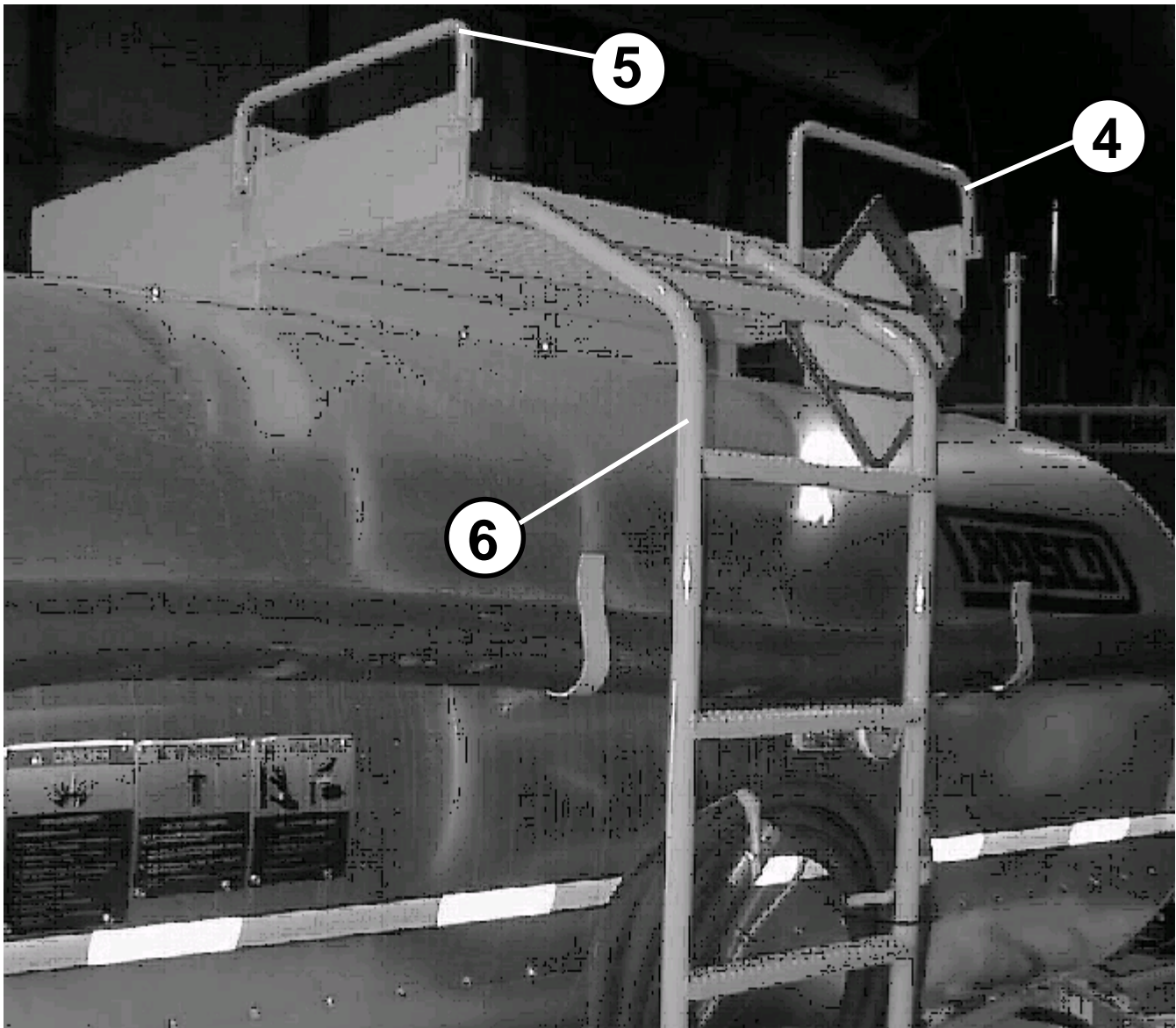
<b>32784</b>			<b>VALVE,RELIEF VIKING</b>
1	36011	1.00	CAP,RELIEF VALVE
2	36009	1.00	SCREW,ADJUSTING,RELIEF VALVE
3	36008	1.00	NUT,LK,RELIEF VALVE
4	36006	1.00	GUIDE,SPRING
5	36007	1.00	BONNET,RELIEF VALVE
6	36003	1.00	VALVE,BODY,VIKING
7	36005	1.00	SPRING,RELIEF VALVE
8	36004	1.00	POPPET,RELIEF VALVE
9	36010	1.00	GASKET,RELIEF VALVE CAP
10	4165-12A-02	1.00	GSKT,BONNET,RELIEF VLV,150GPM

REF: 4165-12A, 32784



REF: 28268

ITEM	PART NUMBER	QTY	DESCRIPTION
<b>28268</b>			<b>LADDER GRP,RMT</b>
NS	21676	2.00	END,PLATFORM
NS	21677	4.00	BRACKET
NS	22484	1.00	PLATFORM,NON SKIRT
4	23088	1.00	HANDLE,SIDE,RH
5	23089	1.00	HANDLE,END,LH
6	28198	1.00	LADDER,RMT,W/M
NS	37000	2.00	DECAL,NO STEP
NS	80038	22.00	NUT,HEX,.375-16
NS	80142	33.00	WASHER,TYPE A PLAIN,.375
NS	80162	22.00	WASHER,SPLIT LOCK,.375
NS	80224	17.00	CSHH,.375-16X1.25,GR5
NS	80226	5.00	CSHH,.375-16X1.50,GR5



**TOOL BOX**

**ROSCO RMT**

**REF: 28286**

ITEM	PART NUMBER	QTY	DESCRIPTION
	<b>28286</b>		<b>TOOL BOX,W/M</b>
1	28287	1.00	LID,TOOL BOX
2	28288	1.00	SIDES-BOTTOM,TOOL BOX
3	28289	2.00	ENDS,TOOL BOX
4	14208-2	1.00	HINGE,CONT,2x23.75,14GA,SS304
5	99483	1.00	PIPE,HALF CPLG,04FP
6	99535	1.00	PIPE,PLUG,04MPSQ HD,MI
7	33265	1.00	SAFETY HASP W/SWIVEL STAPLE



REF: 28296

ITEM	PART NUMBER	QTY	DESCRIPTION
<b>28296</b>			<b>ENGINE GROUP,LP,RMT</b>
1	28297	1.00	BRACKET,THROTTLE
2	28356	1.00	BRACKET,THROTTLE ACTUATOR
3	28358	1.00	BRKT,ADJUSTER THROTTLE
4	28522	1.00	MOUNT,REGULATOR
5	33162	2.00	CLAMP,HOSE,.44-.78,WORM,#06
6	33163	2.00	CLAMP,HOSE,.50-.91,WORM,#08
7	33277	2.00	CLAMP,HOSE,.22-.62,WORM,#04
8	36018	1.00	CABLE,BATTERY,NEG,14XOGA
9	36339	1.00	CABLE,BATTERY,2 LUG,0 GAX17
10	38778	1.00	ENGINE,KUBOTA,30 HP,LPG
11	38823	2.00	HOSE,LP,VAPOR,.50ID,W/REINFORC
12	38824	2.00	HOSE,LP,VACUUM LOCK,3/16 ID
13	38825	1.00	FUEL FILTERLOCK,LP
	38825-1		ELEMENT W/GASKET,FILTER,FUEL,LP
14	38826	1.00	FITT,STR 04FP-04BSP
15	38881	1.00	ACTUATOR,LINEAR,2.0,12V,112LBS
16	70437	1.00	BATTERY BOOT,POS(RED)
17	91511	1.00	OIL,SAE 10W30 SJ
18	R440	1.00	BATTERY,12V,525 CCA,GROUP 24
19	R441	1.00	HOLD DOWN,BATTERY
20	R443	1.00	CABLE,BATTERY,POS,28,4GA,.406
21	X341	5.00	HOSE,.06,PUSH-ON,250,BLUE

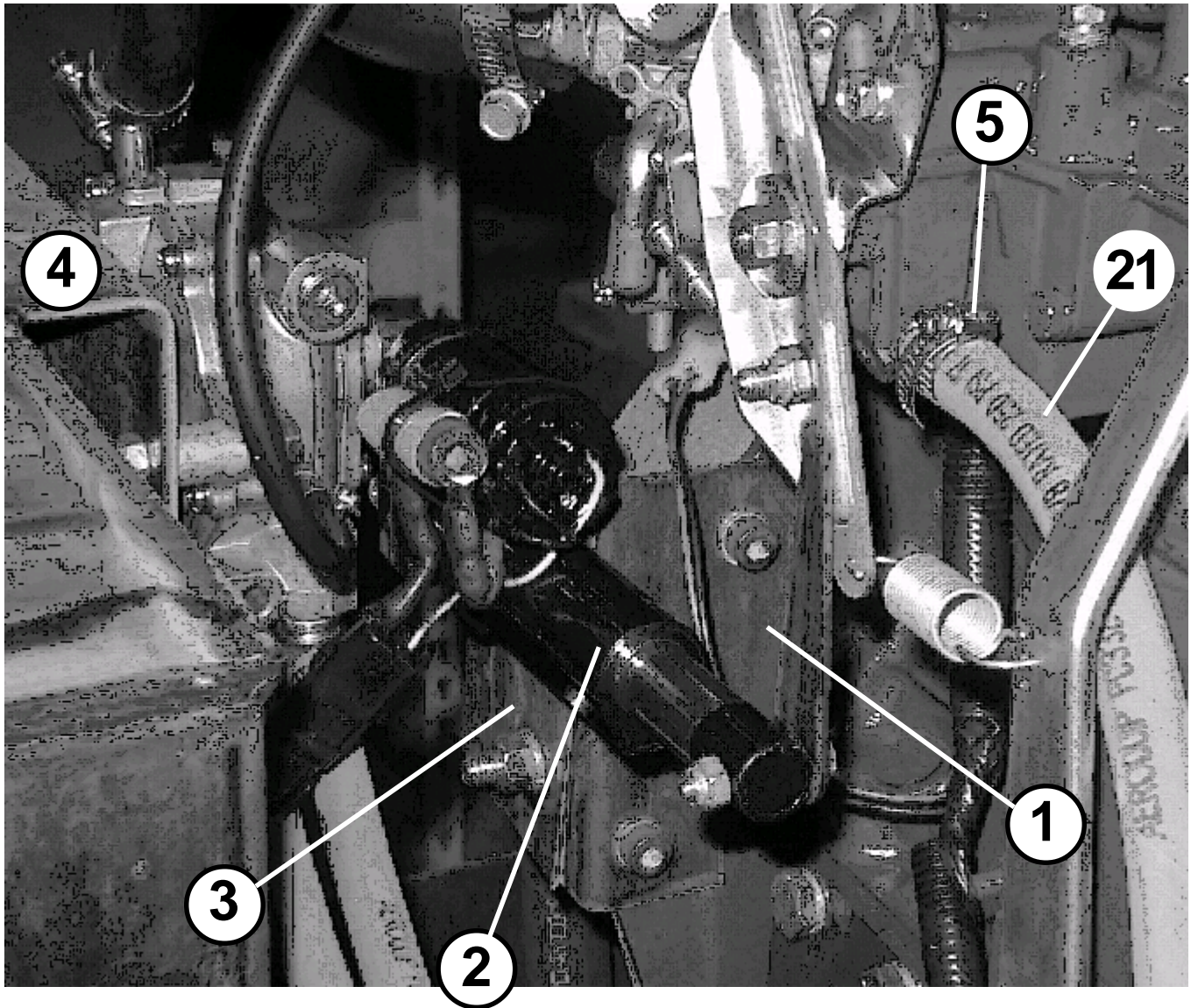
**38778-1**

**FILTER,OIL**

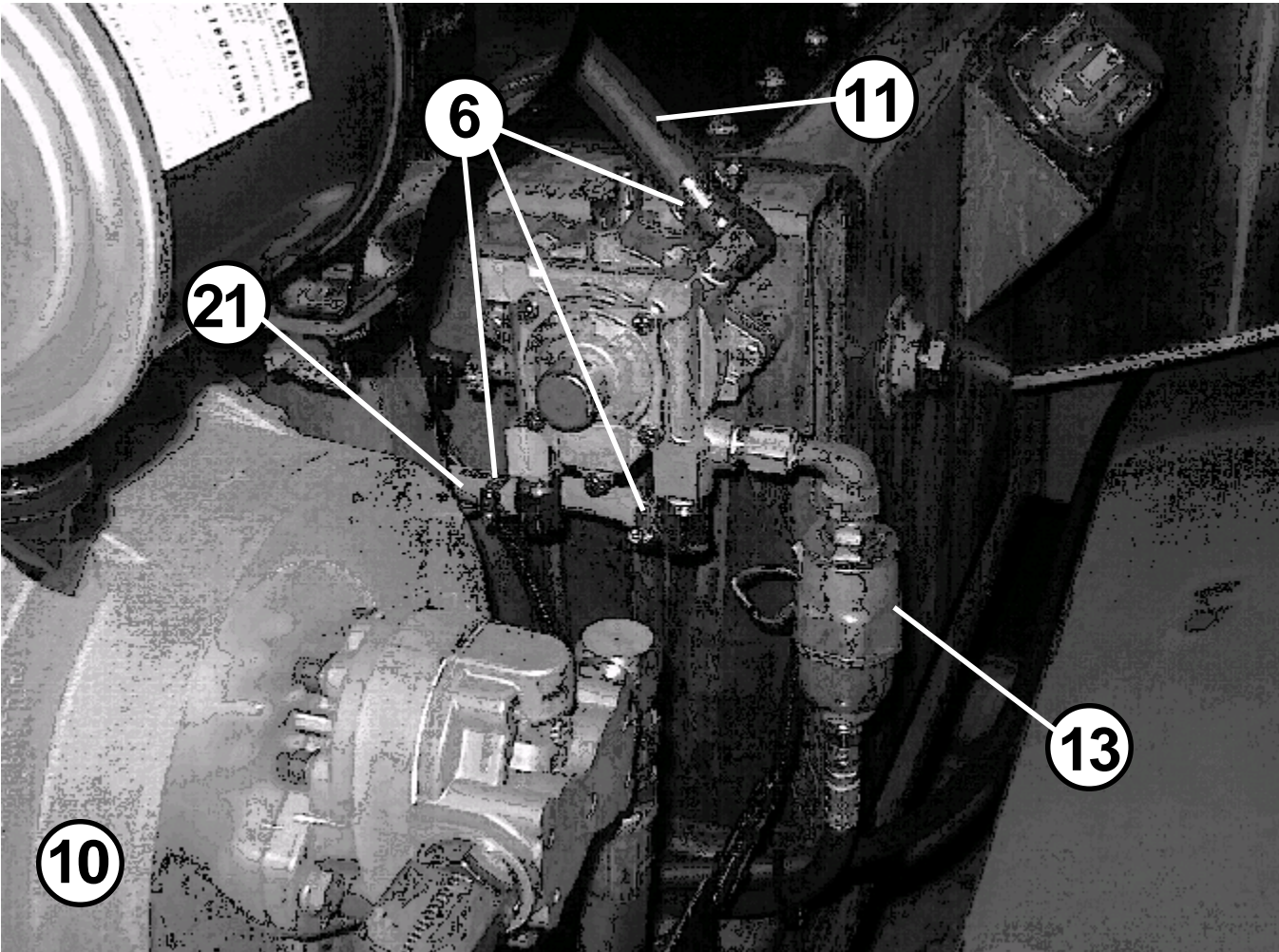
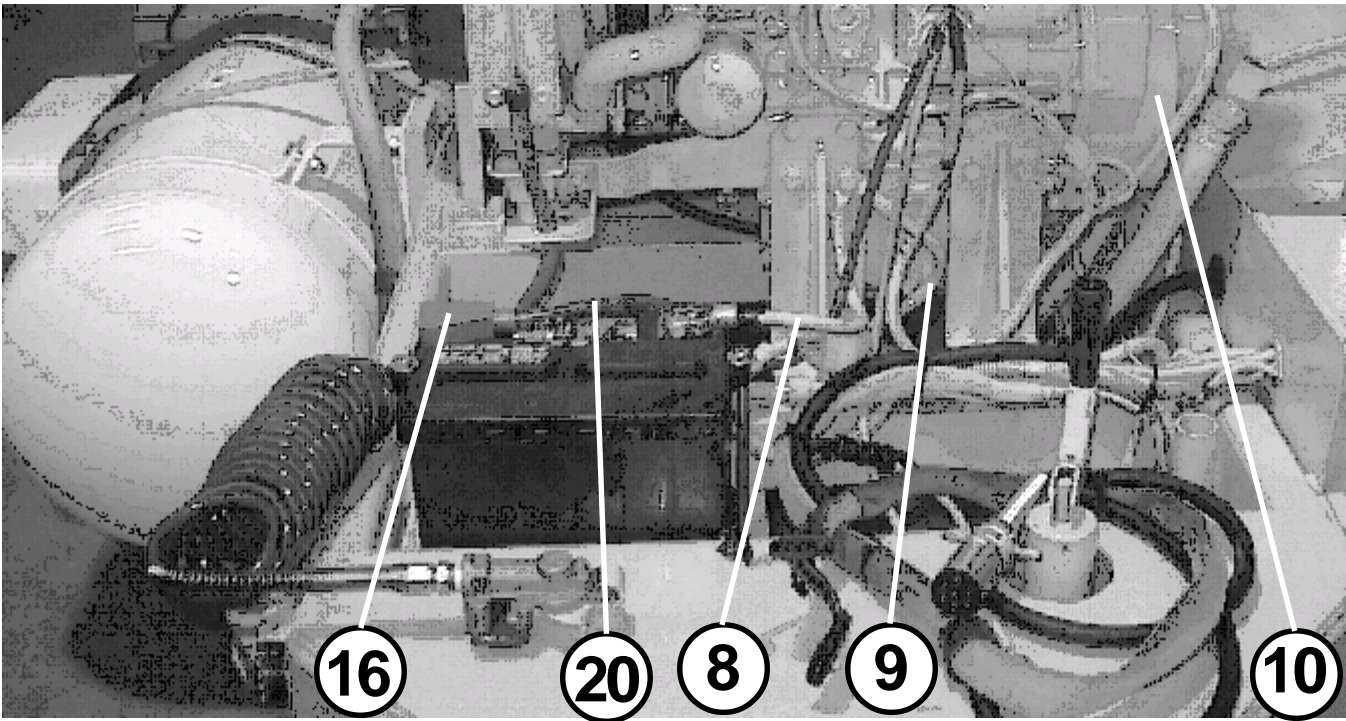
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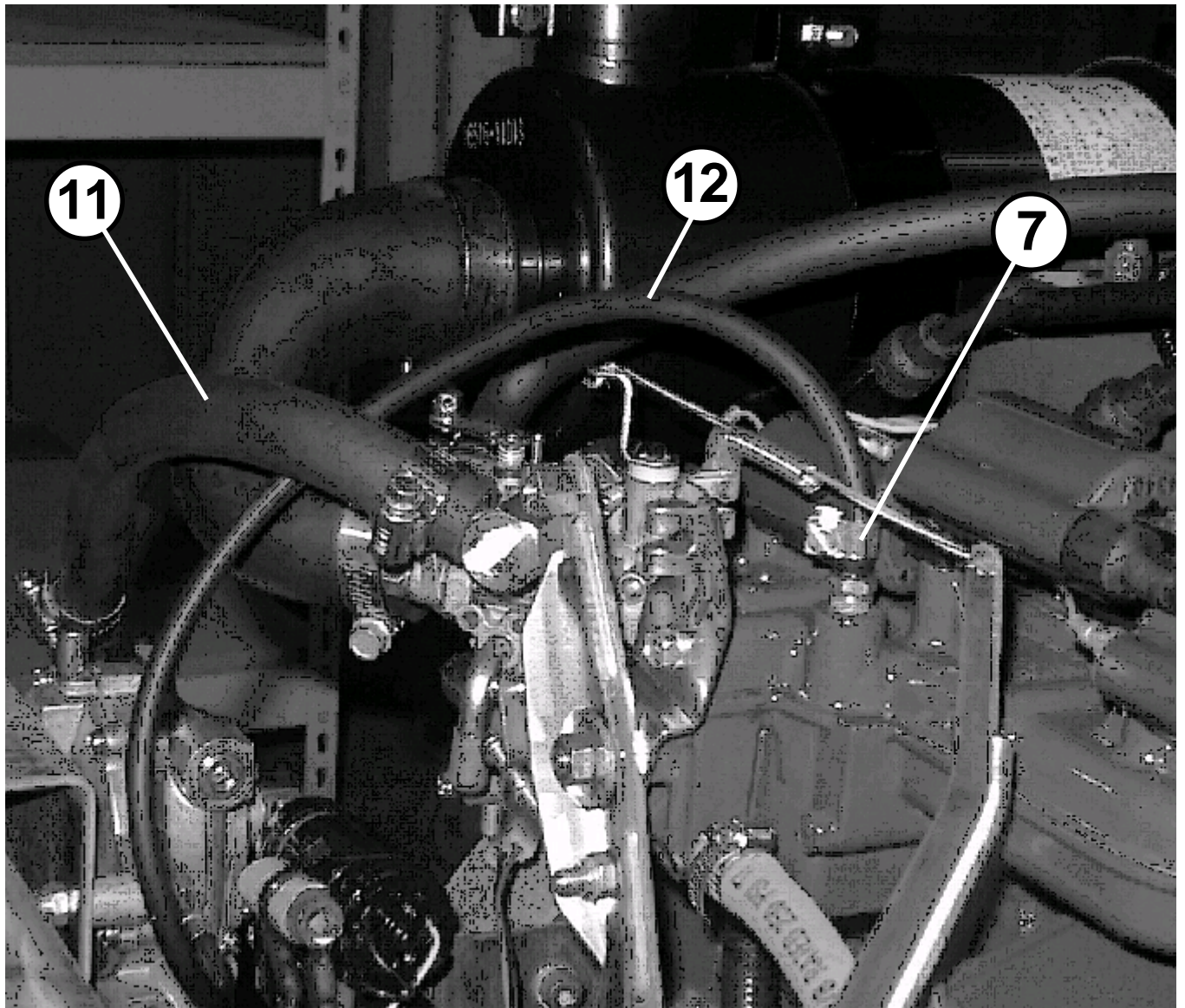
**FILTER,AIR,ELEMENT ONLY**

**SEE ILLUSTRATIONS - FOLLOWING PAGES**



REF: 28296





REF: 28346

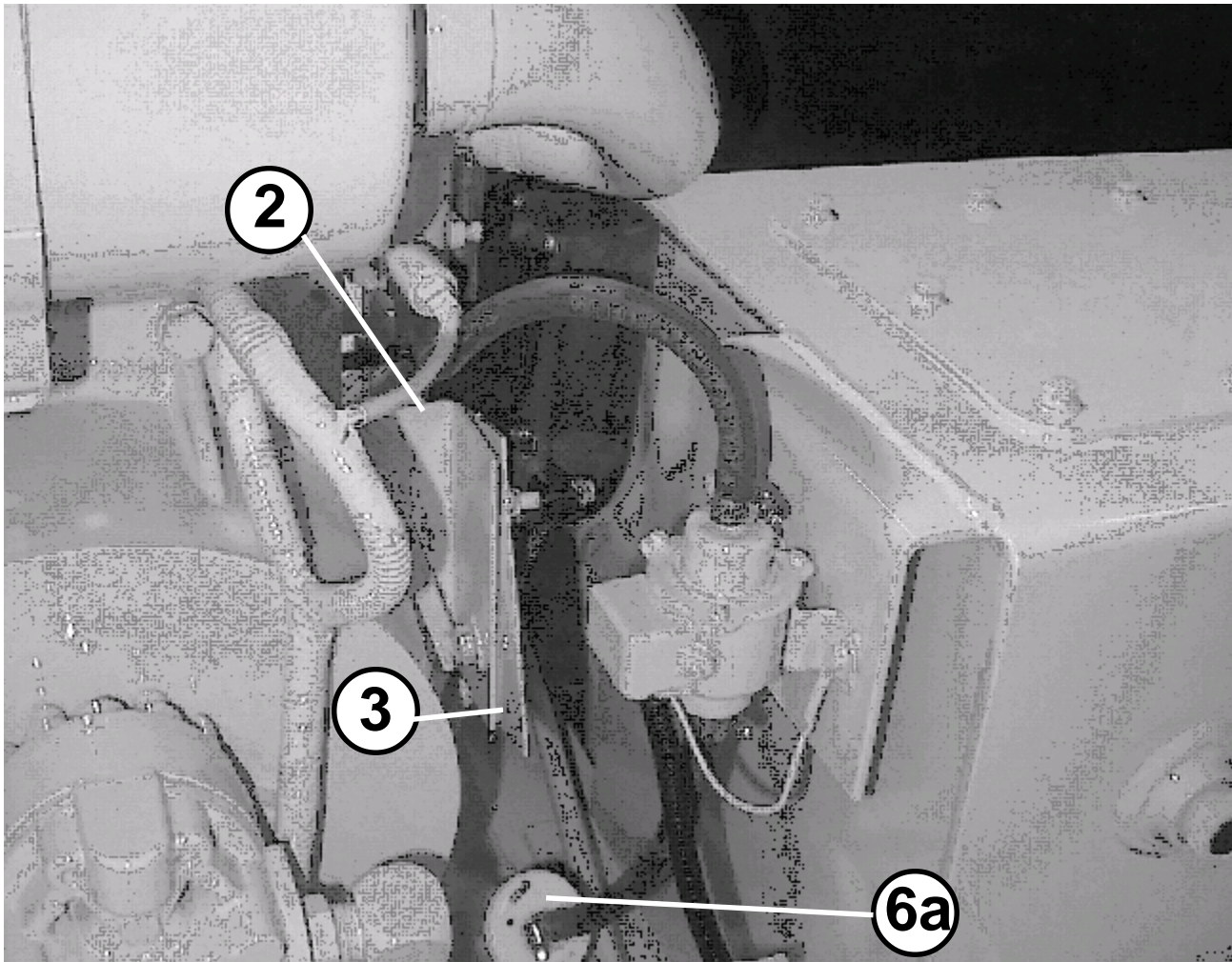
ITEM	PART NUMBER	QTY	DESCRIPTION
<b>28346</b>			<b>ENGINE GROUP,GAS,RMT</b>
1	28297	1.00	BRACKET,THROTTLE
2	28356	1.00	BRACKET,THROTTLE ACTUATOR
3	28358	1.00	BRKT,ADJUSTER THROTTLE
4	36018	1.00	CABLE,BATTERY,NEG,14XOGA
5	36339	1.00	CABLE,BATTERY,2 LUG,0 GAX17
6	38844	1.00	ENGINE,KUBOTA,31HP,GAS
6a	38844-1		FUEL FILTER,GAS
7	38881	1.00	ACTUATOR,LINEAR,2.0,12V,112LBS
8	70437	1.00	BATTERY BOOT,POS(RED)
9	91511	1.00	OIL,SAE 10W30 SJ
10	R440	1.00	BATTERY,12V,525 CCA,GROUP 24
11	R441	1.00	HOLD DOWN,BATTERY
12	R443	1.00	CABLE,BATTERY,POS,28,4GA,.406

**38778-1**

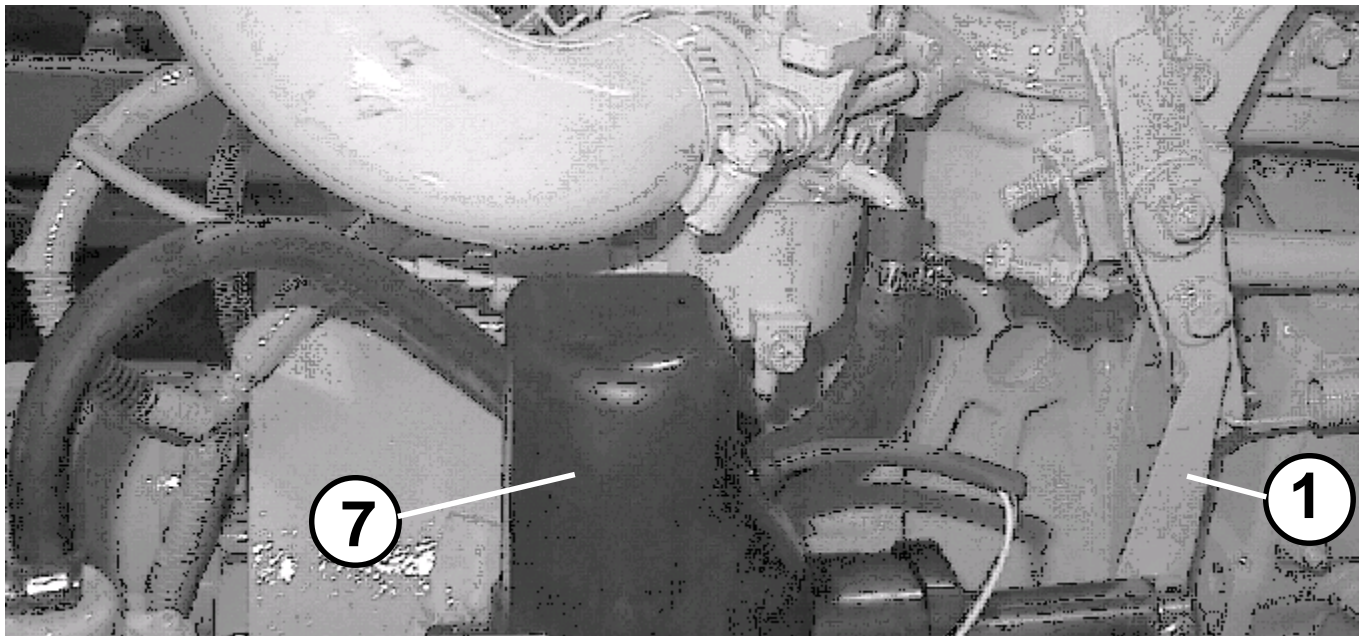
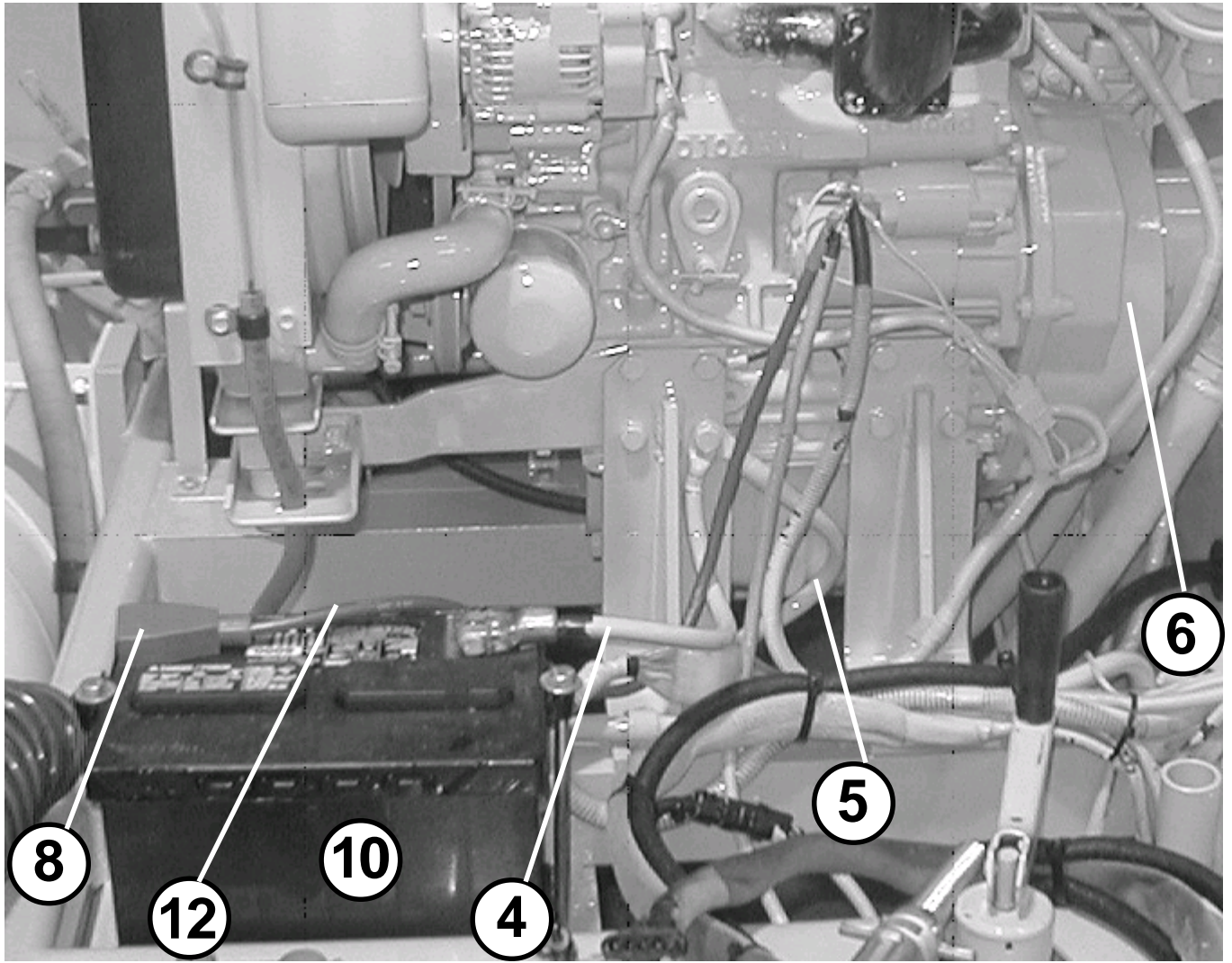
**FILTER,OIL**

**38778-2**

**FILTER,AIR,ELEMENT ONLY**



REF: 28346



REF: 28347

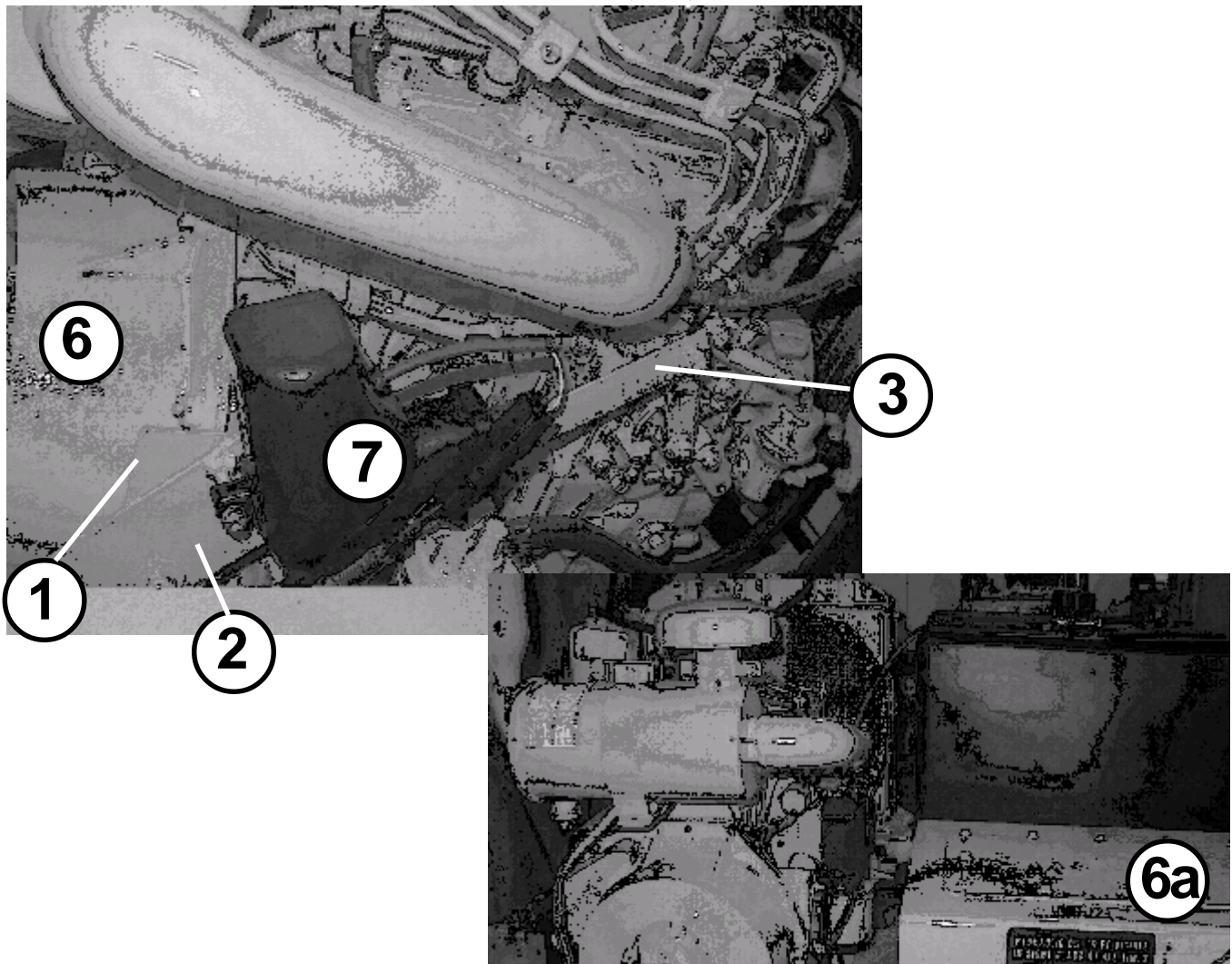
ITEM	PART NUMBER	QTY	DESCRIPTION
			<b>28347 ENGINE GROUP,DIESEL,RMT</b>
1	28356	1.00	BRACKET,THROTTLE ACTUATOR
2	28358	1.00	BRKT,ADJUSTER THROTTLE
3	28653	1.00	LINKAGE,THROTTLE
4	36018	1.00	CABLE,BATTERY,NEG,14XOGA
5	36339	1.00	CABLE,BATTERY,2 LUG,0 GAX17
6	38845	1.00	ENGINE,KUBOTA,26HP,DIESEL
6a	38845-1		FUEL FILTER,DIESEL
7	38881	1.00	ACTUATOR,LINEAR,2.0,12V,112LBS
8	70437	1.00	BATTERY BOOT,POS(RED)
9	R440	1.00	BATTERY,12V,525 CCA,GROUP 24
10	R441	1.00	HOLD DOWN,BATTERY
11	R443	1.00	CABLE,BATTERY,POS,28,4GA,.406

**38778-1**

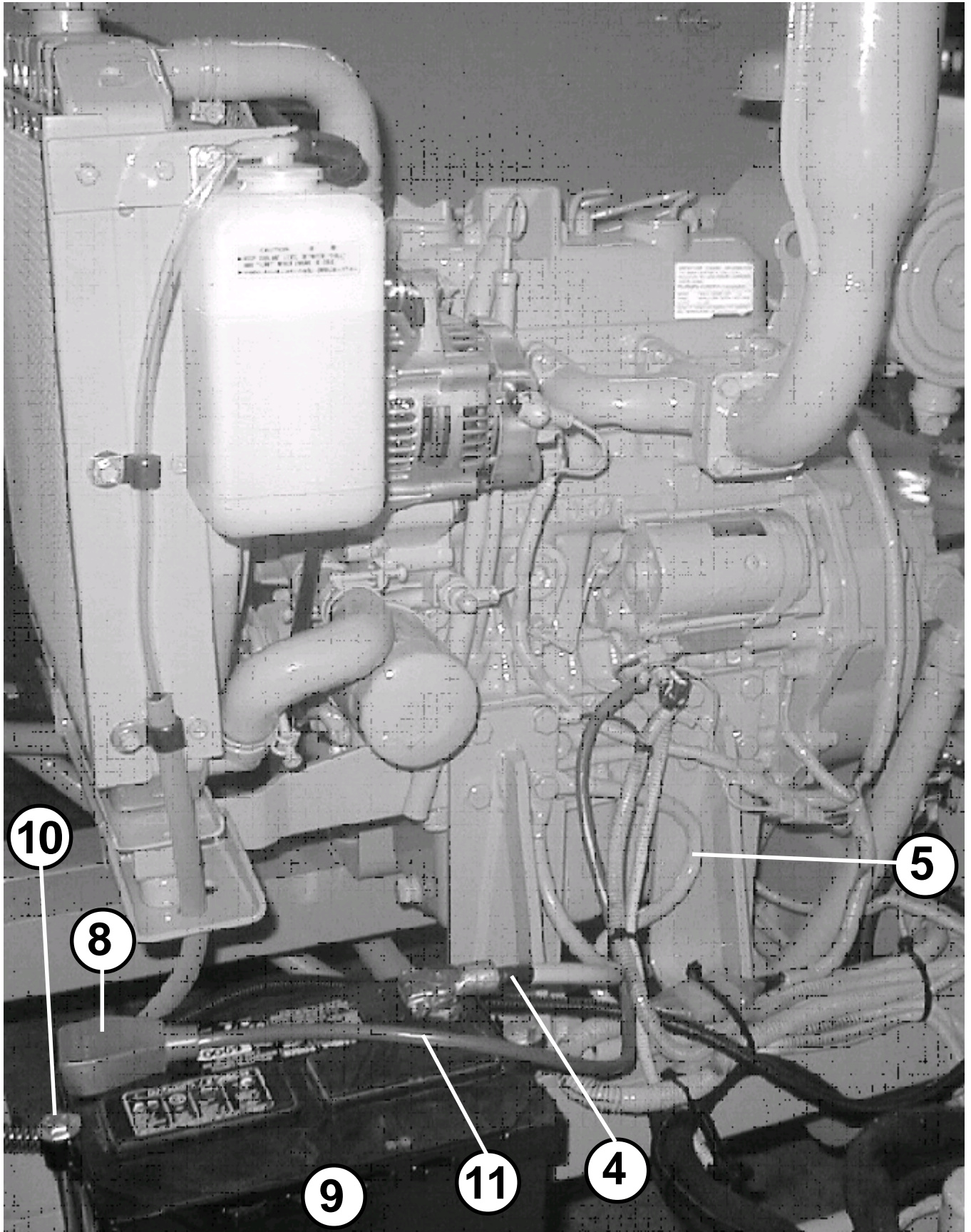
**FILTER,OIL**

**38778-2**

**FILTER,AIR,ELEMENT ONLY**



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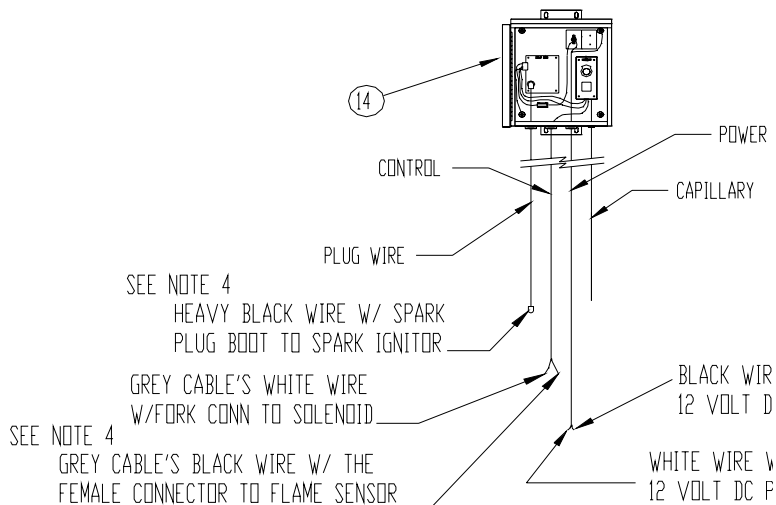


REF: 28294

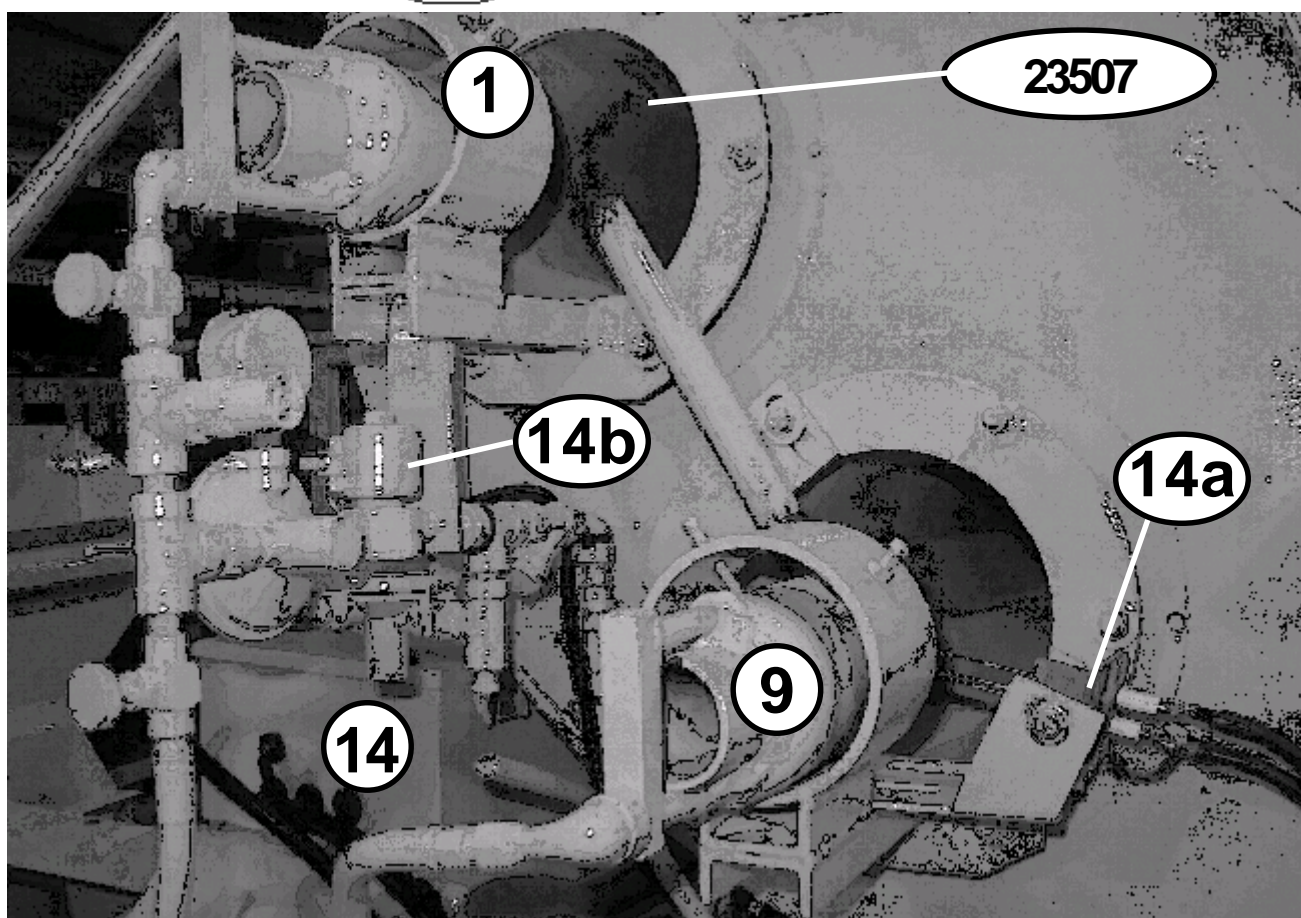
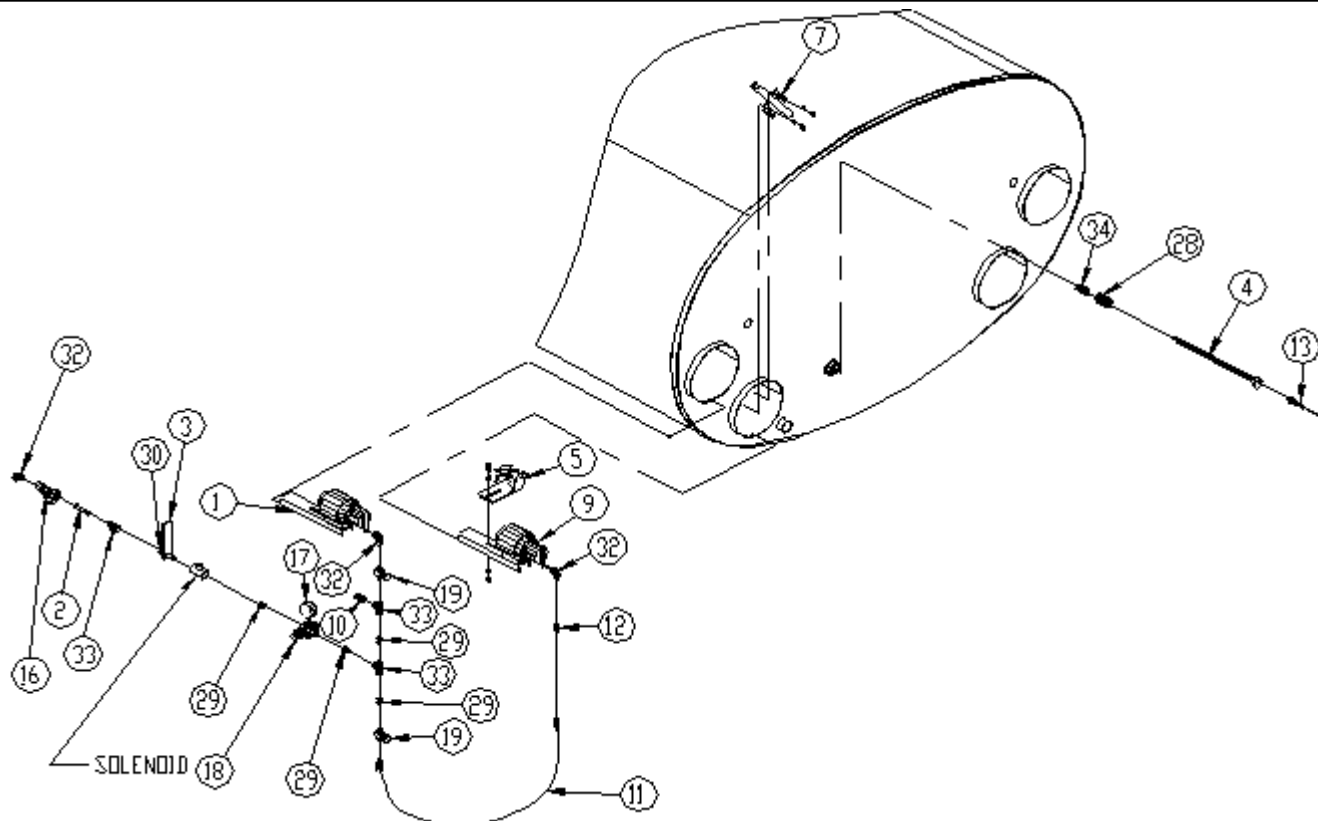
ITEM	PART NUMBER	QTY	DESCRIPTION
			<b>28294 BURNER,LP,B2,D/F,RMT</b>
1	23508	2.00	BURNER BRKT ASSY W/M
0	28539	1.00	TAB,MT PIPING BRACKET
0	38880	1.00	DECAL,LPG BURNER SAFETY,RMT
0	71060	1.00	LOOM,SPLIT,CONVOLUTED,.250
2	90745	1.00	PIPE,NIPPLE,04X1.50,300#
3	17648	1.00	SUPPORT,BURNER PIPING
4	18353	1.00	THERMOWELL,.08X16
5	22869	1.00	BRACKET,IGNITOR
6	22397	2.00	FLUE TUBE FLANGE W/M,DSL BURN
7	25704	1.00	CROSSOVER PIPE,LP BURNERS
9	6118	2.00	BURNER,PROPANE,LIQUID,B2
10	34318	2.00	VLV,LPG,RELIEF,04 NPT,450 PSI
11	34448	1.00	HOSE,04X14,04MP-04FJX,350
12	35245	1.00	FITT,STR 04FP-04MS,LPG,BRASS
13	35848	1.00	UNION CONN,CPLRY,.50 NPT
14	37241	1.00	BURNER CONTROL,100-400DEG CTRL
14a	37241-04		IGNITOR
14b	37241-07		SOLENOID
16	5121	1.00	STRAINER,Y,.250PT,60 MESH
17	5122	1.00	GAUGE,PRESS,0-100PSI,2.00,04MP
18	6119	1.00	REGULATOR,LPG
19	6120	2.00	VLV,NEEDLE,04 FEMALE,NPT
27	90723	4.00	LOOM,BRAIDED FIBERGLASS,.375
28	90126	1.00	PIPE,CPLG,16FP
29	90744	6.00	PIPE,NIPPLE,04XCLOSE,300#
30	90746	1.00	PIPE,NIPPLE,04X2.50,300#
31	90749	1.00	PIPE,NIPPLE,04X4.00,300#
32	90763	3.00	PIPE,90,04FP-04MP,300#
33	90772	3.00	PIPE,TEE,04FP,300#
34	99697	1.00	PIPE,NIPPLE,16X2.50

**23507**

**FLUE LINER W/M,LP BURNER,SST**



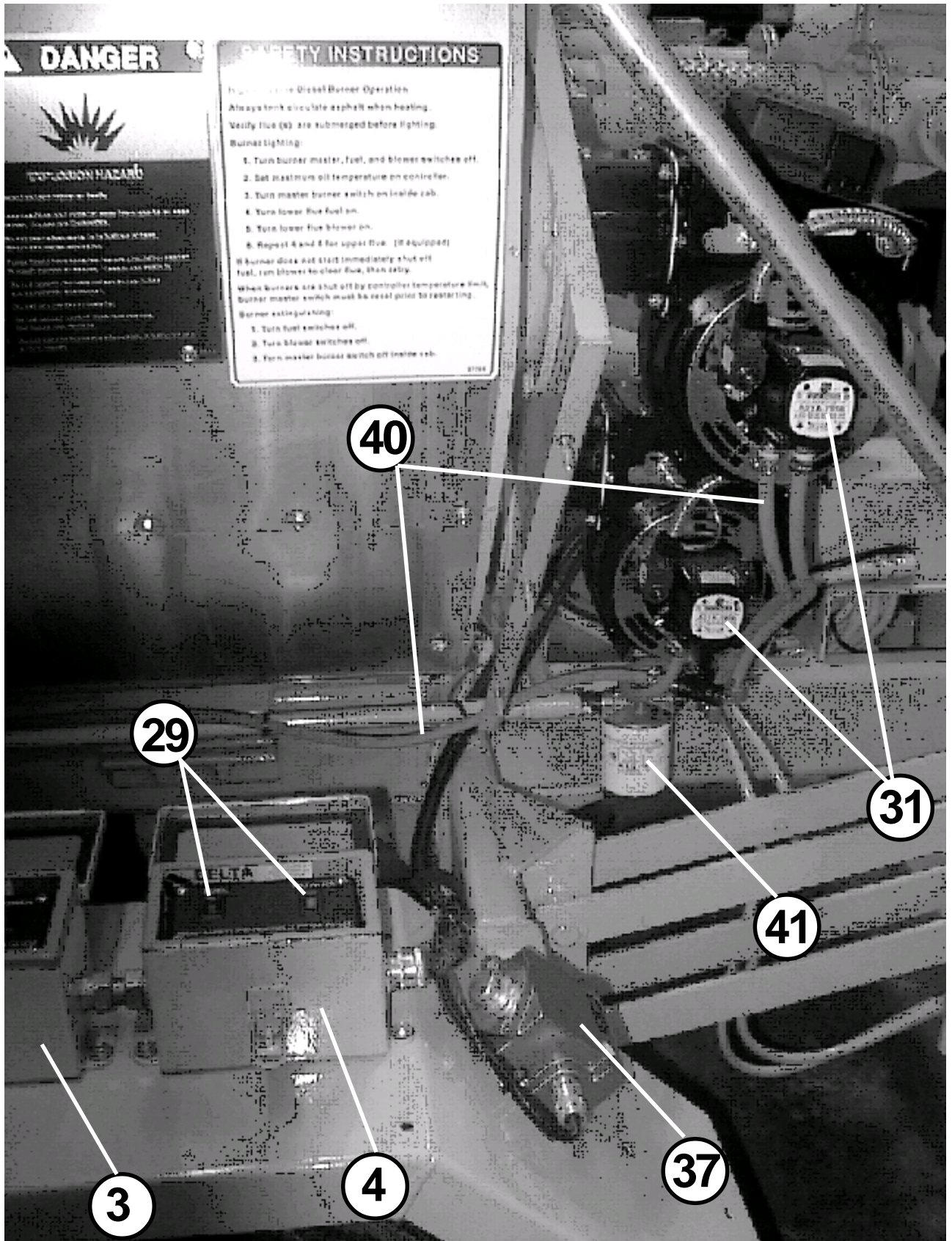
REF: 28294



REF: 19343-7

ITEM	PART NUMBER	QTY	DESCRIPTION
<b>19343-7</b>			<b>DIESEL BNR,HP,DBL FLUE,W/THERM,W/OUTFIRE</b>
1	18353	1.00	THERMOWELL,.08X16
2	19344	2.00	SWITCH PLATE,HP DIESEL BURNER
3	19425	1.00	ENCLOSURE,ELEC,4X4X6,W/1 HOLE
4	19426	1.00	ENCLOSURE,ELEC,4X4X6,W/2 HOLES
5	19427	1.00	CONDUIT,RIDGID,.50X1.75
6	31167	4.00	FITT,STR 04MP-04HB,PUSH-ON
7	31971	1.00	FITT,90 04MP-04HB,CRIMPED
8	33271-13	12.00	WIRE,16 GA,BLACK/YELLOW STRIPE
9	33271-14	5.00	WIRE,16 GA,YELLOW/RED STRIPE
10	33271-20	5.00	WIRE,16 GA,GRAY/BLACK STRIPE
11	33277	8.00	CLAMP,HOSE,.22-.62,WORM,#04
12	33600	30.00	TERM,PUSH-ON,.25,FEM,16-14 GA
13	33602	6.00	CONN,BUTT,16-14 GA
14	33603	2.00	CONN,BUTT,12-10 GA
15	33610	4.00	TERM,PUSH-ON,.25,FEM,12-10 GA
16	33612	2.00	TERM,RING,12-10 GA,.375 STUD
17	33620	6.00	TERM,RING,12-10 GA,#10 STUD
18	33765	6.00	NUT,LK,ELEC CND,.500-14 NPT
19	34185	2.00	CONDUIT CONNECTOR, 1/2 NPT
20	34203	26.00	WIRE,14 GA,ORANGE
21	34469	1.00	CONTACT,PIN,20-14 GA
22	34471	1.00	CONTACT,SOCKET,20-14 GA
23	34853	2.00	CIRCUIT BREAKER,40 AMP
24	35045	1.00	FITT,45 04MP-04HB,CRIMPED
25	35123	2.00	TERM,RING,16-14 GA,#6 STUD
26	35174	5.00	WIRE,14 GA,PURPLE
27	35790	2.00	THUMBSCREW,#10-32X.375
28	35848	1.00	UNION CONN,CPLRY,.50 NPT
29	35892	4.00	SWITCH,ROCKER,SPST,OFF/ON
30	35896	1.00	FITT,CABLE 08MP,.500-.625
<b>31a</b>	<b>36044</b>	<b>2.00</b>	<b>HP DIESEL BURNER, W/ CAD CELL (See Detail Following)</b>
<b>31b</b>	<b>36625</b>	<b>2.00</b>	<b>HP DIESEL BURNER, W/O CAD CELL (Detail Following)</b>
32	36050	8.00	STANDOFF,10-32UNFX3,MALE-FEM
33	36085	4.00	RELAY,SPDT,40AMP,12VDC
34	36087	2.00	SWITCH,PUSH BUT,MOMENTARY
35	36088	2.00	DECAL,REAR CONTROL,DIESEL BNR
36	36089	1.00	DECAL,HP DIESEL BURNER SAFETY
37	36896	1.00	SWITCH,TEMP,150-650 DEG F
38	37076	1.00	DECAL,DBL DSL,UPPER BURNER
39	37077	1.00	DECAL,DBL DSL,LOWER BURNER
40	5347	18.00	HOSE,04,PUSH-ON,LOW PRESS
41a	5820	2.00	STRAINER & ELEMENT
41b	38662	2.00	STRAINER
41c	38662-01	2.00	ELEMENT
42	71060	38.00	LOOM,SPLIT,CONVOLUTED,.250

REF: 19343-7

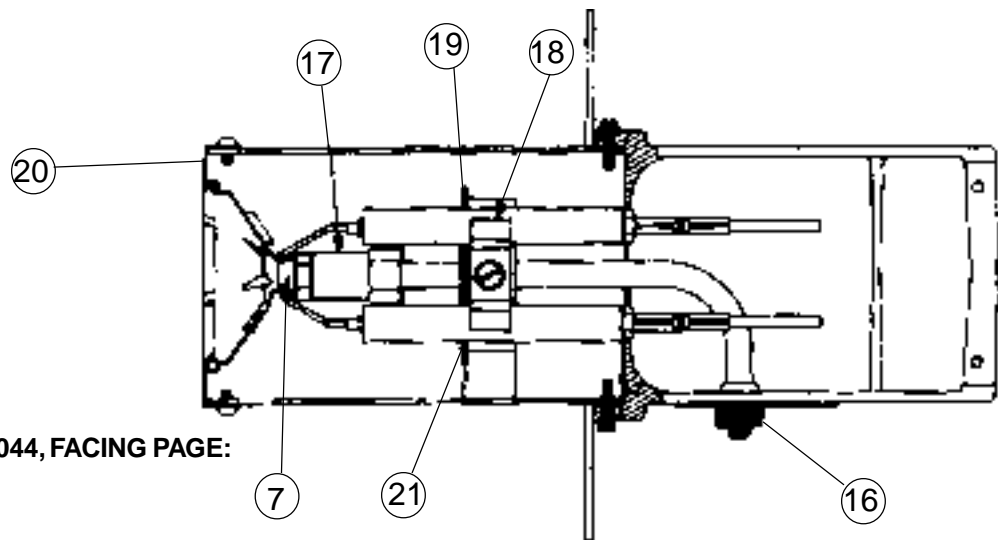


REF: 19343-7

ITEM	PART NUMBER	QTY	DESCRIPTION
43	71063	2.00	WIRE,14 GA,GREEN
44	71064	6.00	WIRE,14 GA,BLACK
45	71066	4.00	WIRE,14 GA,YELLOW
46	71716	2.00	MACH SCR,PH,#10-24X.75
47	71720	8.00	MACH SCR,PH,#10-32X.38
48	71796	2.00	FITT,90 02MP-04HB,CRIMPED,BRAS
49	71861-2	25.00	WIRE,10 GA,RED
50	71861-4	25.00	WIRE,10 GA,BLACK
51	71864	7.00	LOOM,SPLIT,CONVOLUTED,.375
52	71870	5.00	LOOM,SPLIT,CONVOLUTED,.750
53	72116	5.00	WIRE,14 GA,BROWN
54	72589	1.00	DECAL,DIESEL FUEL
55	80141	10.00	WASHER,TYPE A PLAIN,.312
56	80142	14.00	WASHER,TYPE A PLAIN,.375
57	80161	10.00	WASHER,SPLIT LOCK,.312
58	80352	14.00	NUT,FLEXLOC,.375-16,FULL,LT
59	80995	2.00	WASHER,TYPE A PLAIN,#10
60	81005	2.00	NUT,FLEXLOC,#10-24,FULL,LT
61	81161	8.00	WASHER,WEATHER SEAL,#10
62	851201417	13.00	TIE WRAP,.094X4.00
63	851390204	10.00	TERM,RING,16-14 GA,#10 STUD
64	851390302	3.00	FITT,CABLE 08MP,.250-.375
65	871111605	4.00	CLAMP,LOOP,.50 OD PLSTC COVER
66	90126	1.00	PIPE,CPLG,16FP
67	90723	6.00	LOOM,BRAIDED FIBERGLASS,.375
68	99498	1.00	PIPE,CROSS,08FP,MI
69	99567	1.00	PIPE,TEE,04FP,MI
70	99610	2.00	PIPE,NIPPLE,02XCLOSE
71	99622	1.00	PIPE,NIPPLE,04X2.50
72	99979	2.00	PIPE,BUSH,08MP-02FP,STL

23996

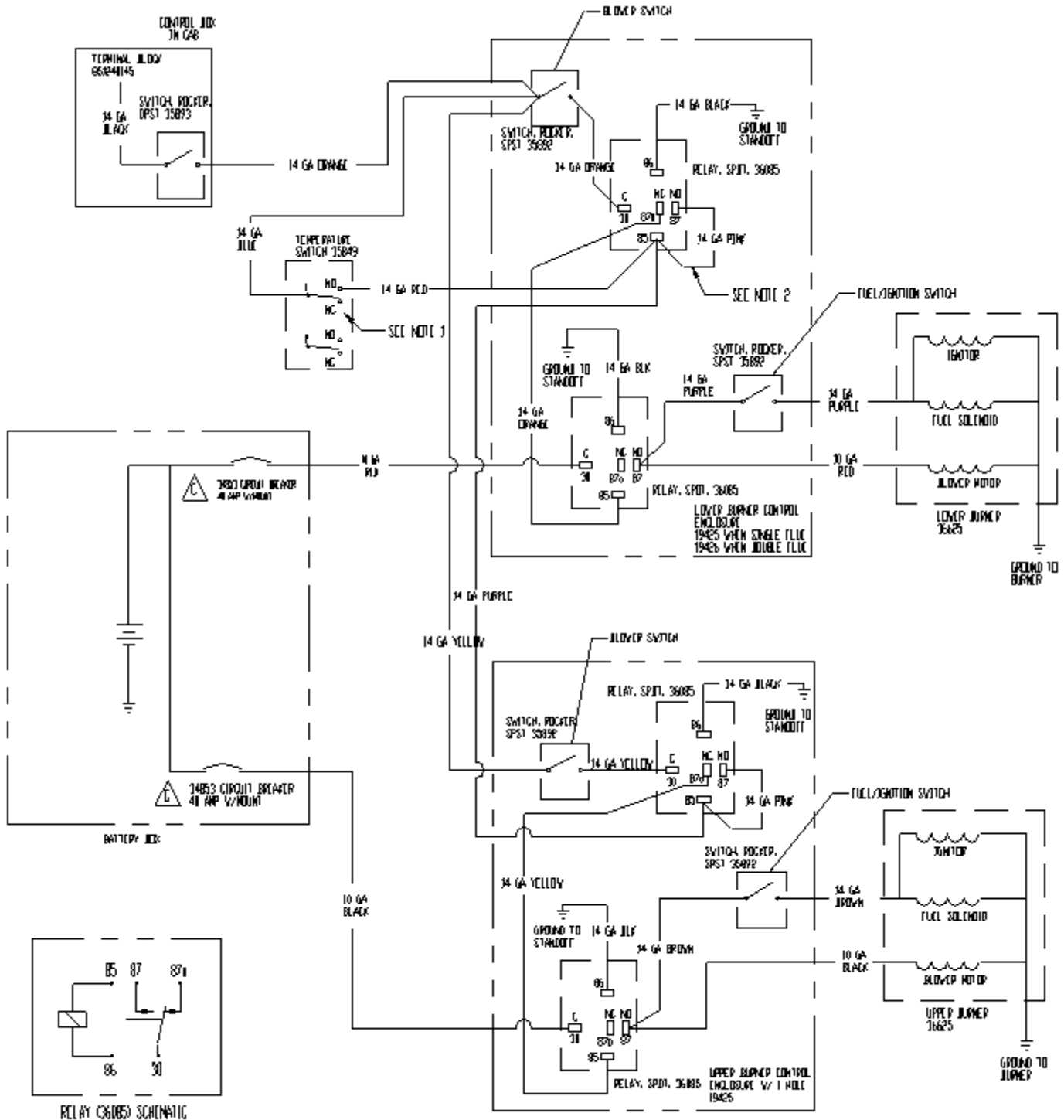
FLUE LINER W/M,DIESEL BURNER



DETAIL A FOR DRAWING 36044, FACING PAGE:

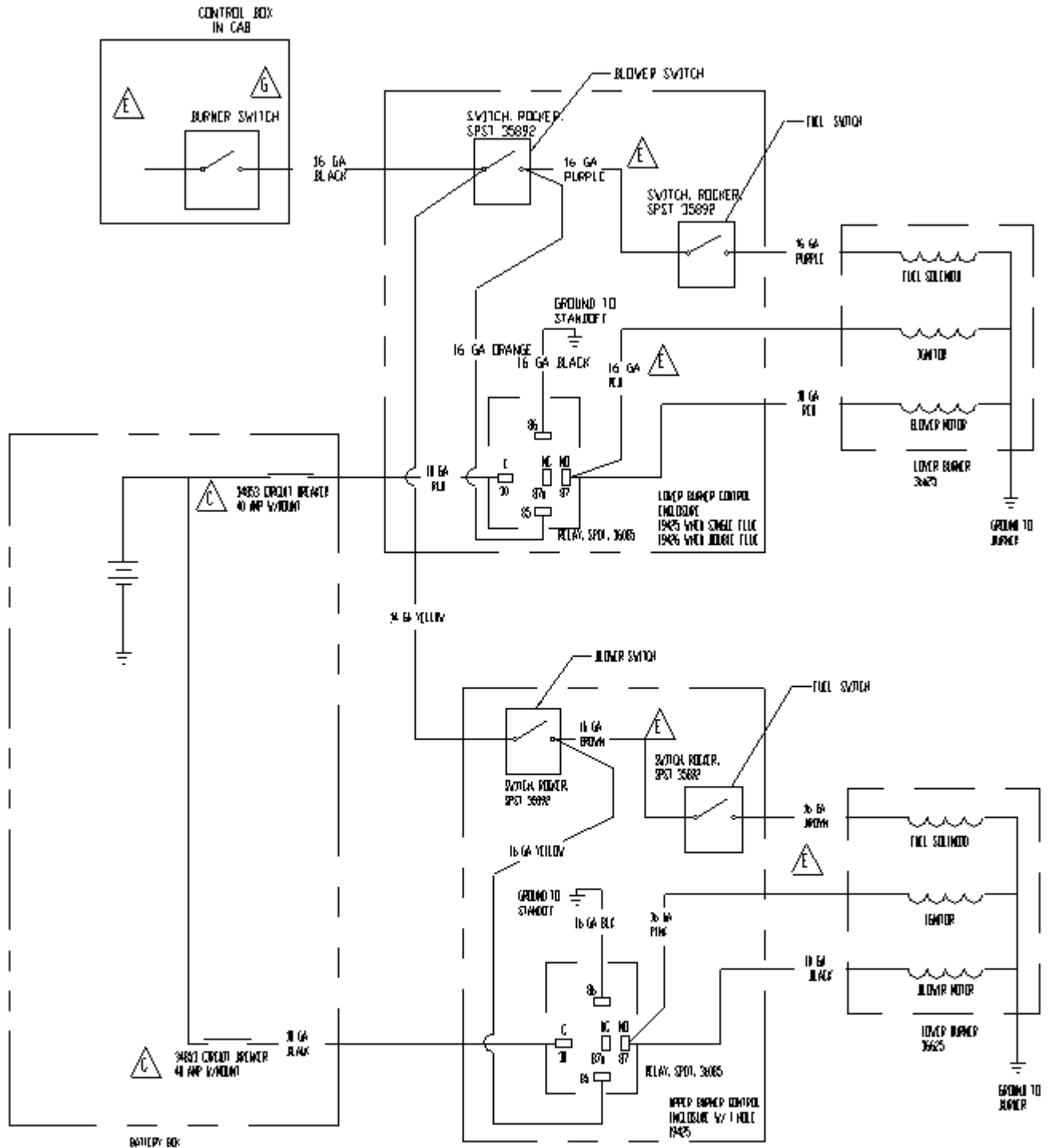


REF: 19343



PART NO	DESCRIPTION
19343-3	DIESEL BURNER, H PRESS, DBL FLUE, W/THERMOSTATIC LIMIT (SLOW)
19343-4	DIESEL BURNER, H PRESS, SGL FLUE, W/THERMOSTATIC LIMIT

REF: 19343



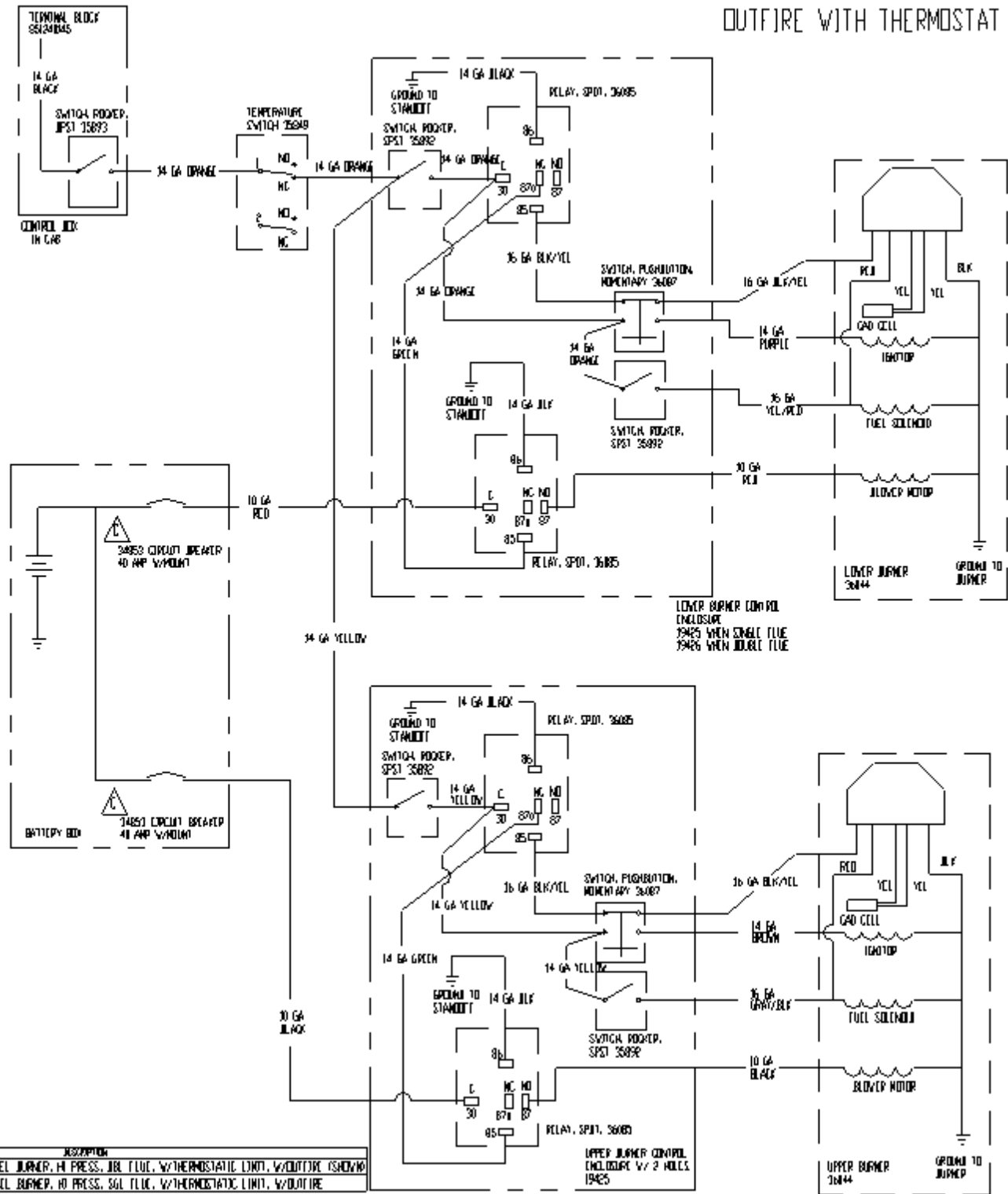
NOTES THIS PAGE AND PREVIOUS PAGE:

- 1) NO CLOSSES AS TEMPERATURE SET POINT IS REACHED.
- 2) THIS WIRE IS ENERGIZED WHEN TEMP SWITCH CLOSSES AND HOLDS RELAY IN ENERGIZED STATE AFTER TEMP DECREASES AND THERMOSTAT REOPENS. TURN OFF BLOWER SWITCHES TO RESET.

PART NO	DESCRIPTION
19343-1	DIESEL BURNER, HI PRESS., DBL FLUE (SHOWING)
19343-2	DIESEL BURNER, HI PRESS., SGL FLUE

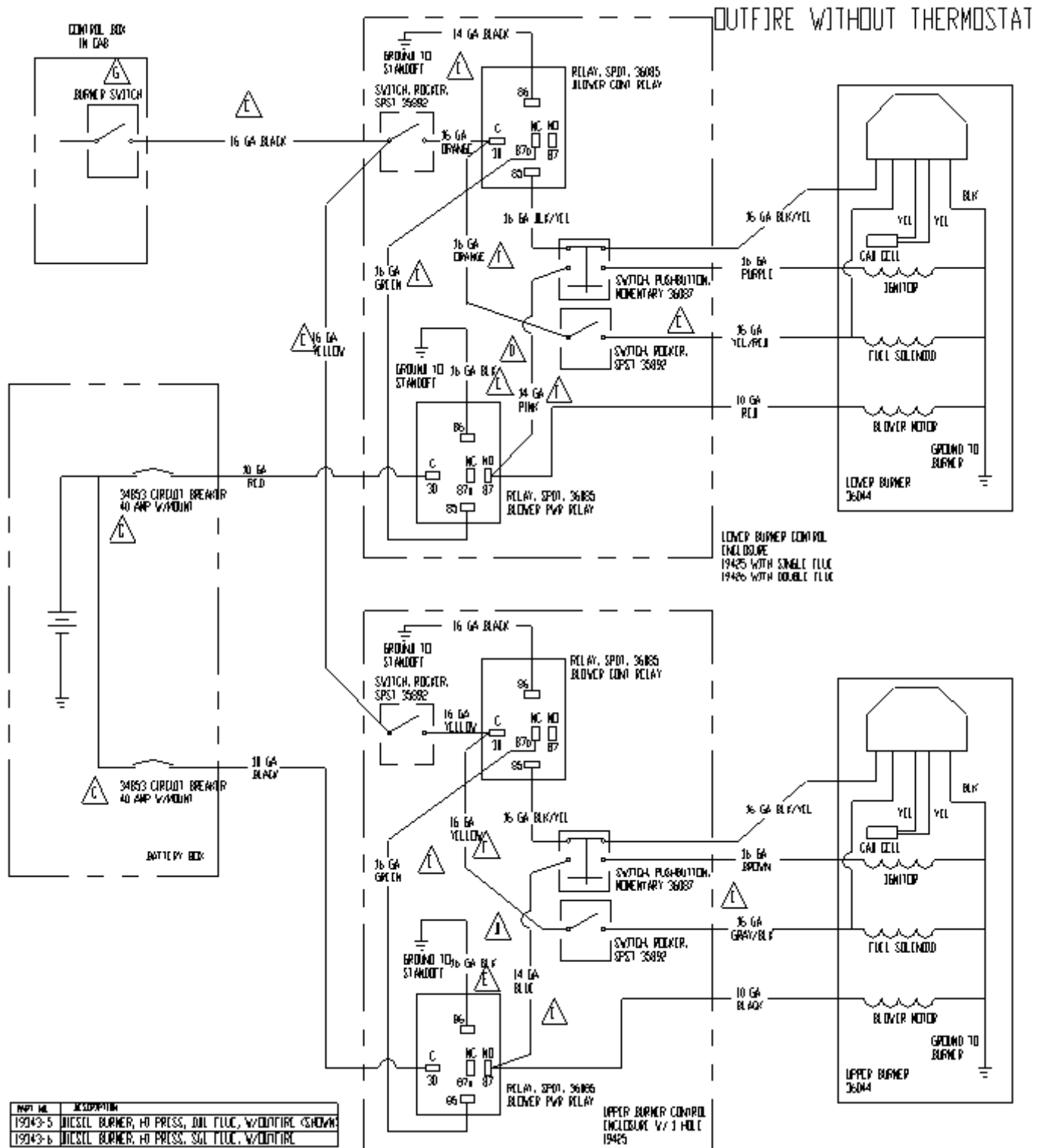
REF: 19343

OUTFIRE WITH THERMOSTAT



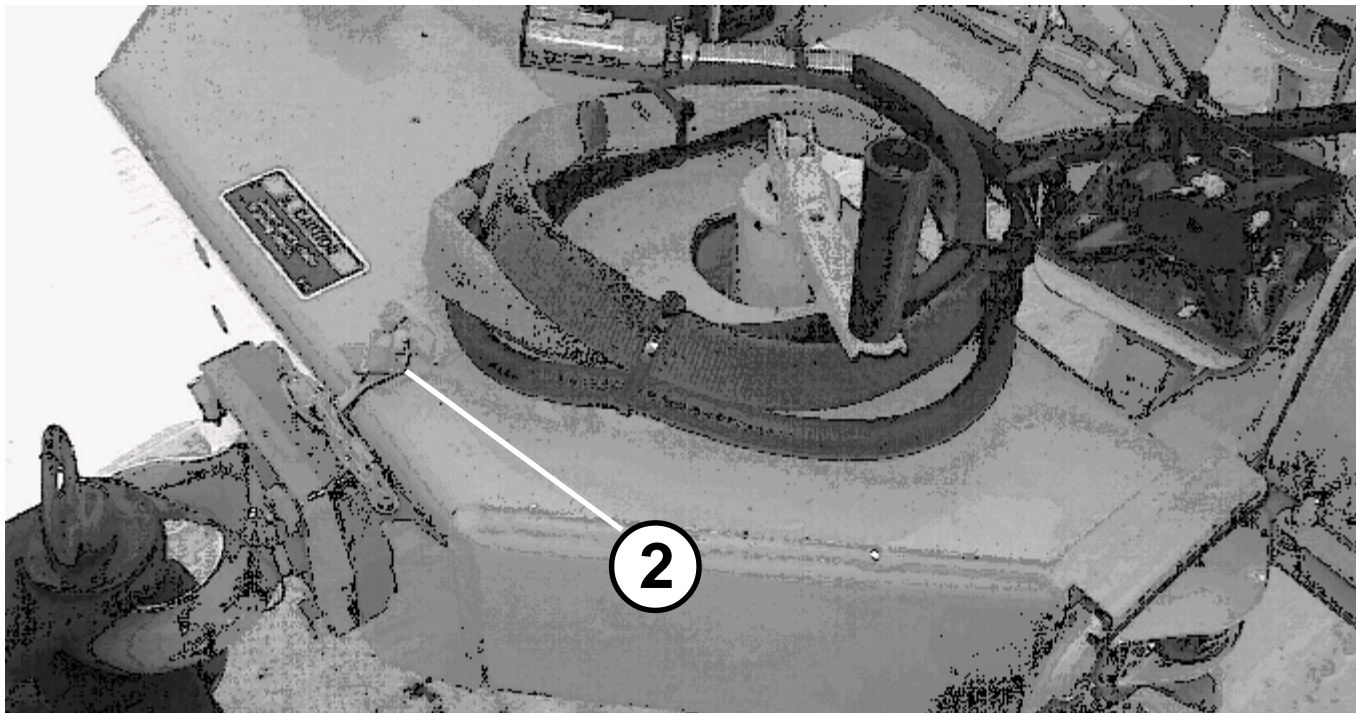
PART NO	DESCRIPTION
19343-7	DIESEL BURNER, HI PRESS., DBL FLUE, W/THERMOSTATIC LIMIT, W/OUTFIRE (SLOWING)
19343-8	DIESEL BURNER, HI PRESS., SGL FLUE, W/THERMOSTATIC LIMIT, W/OUTFIRE

REF: 19343

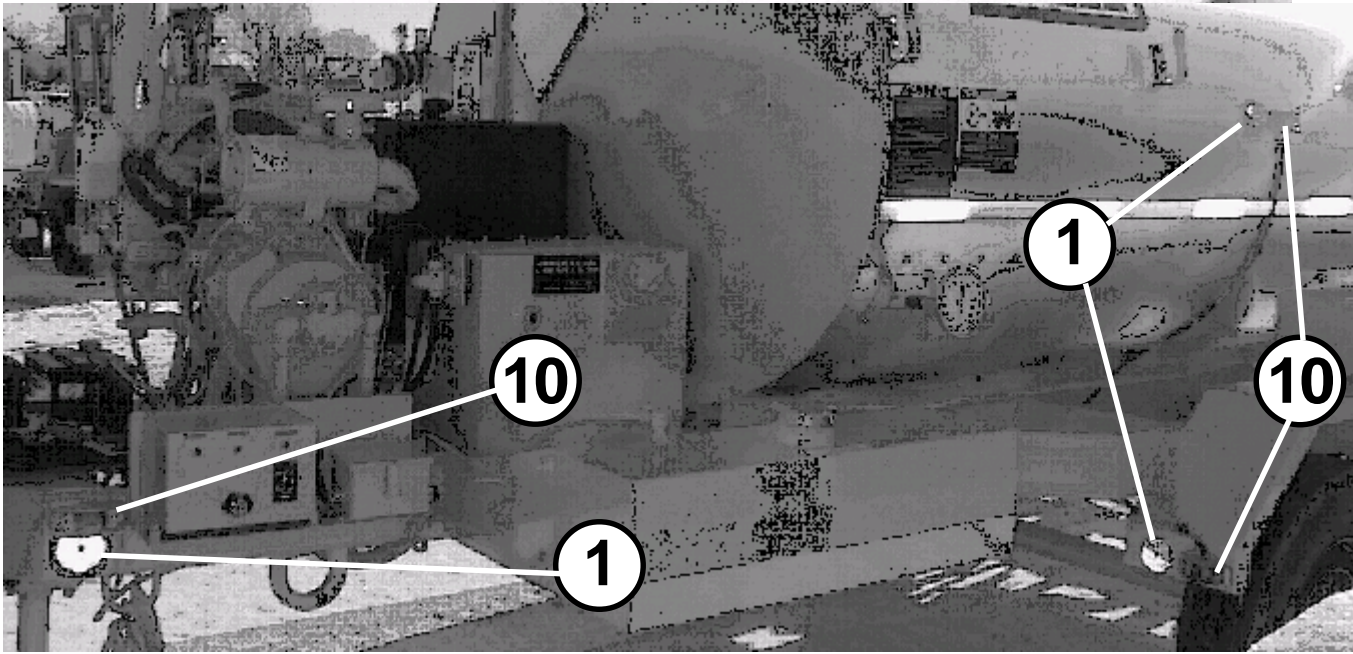
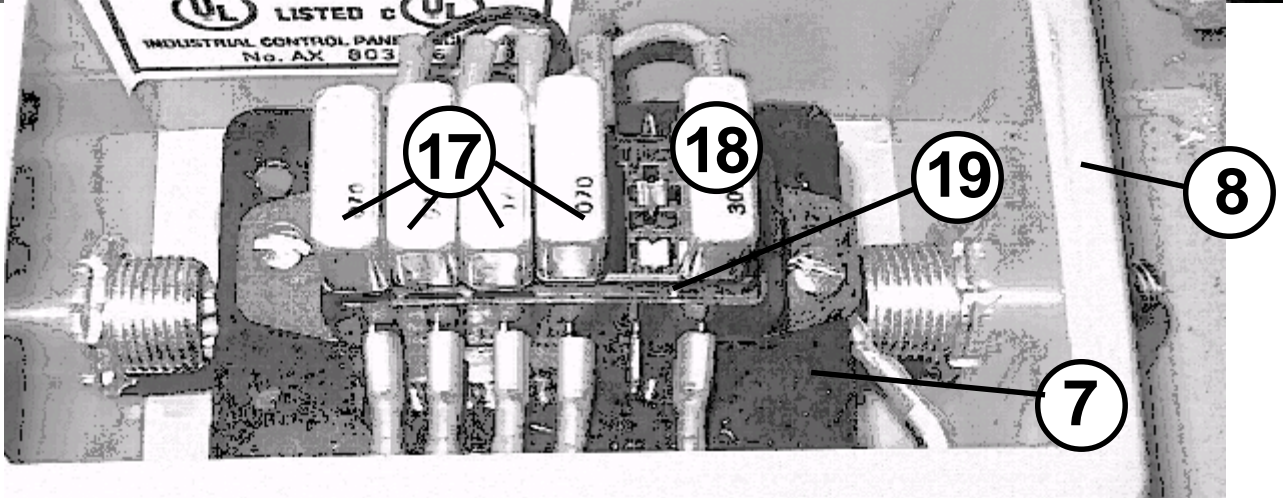
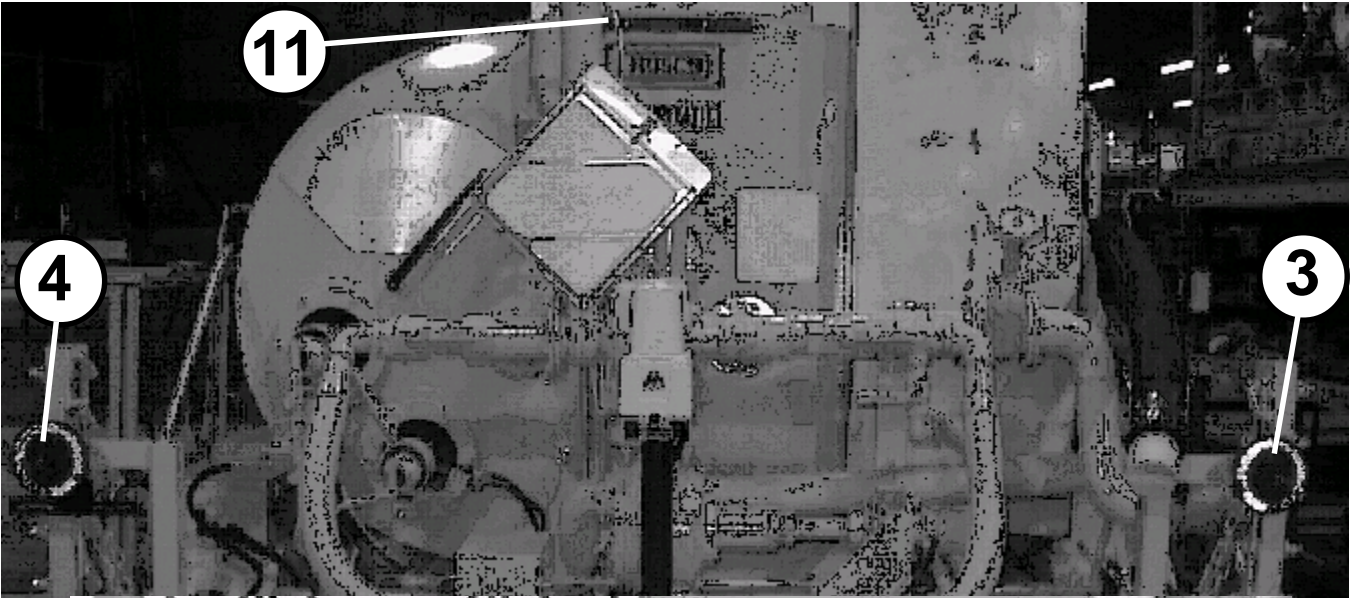


REF: 28323

ITEM	PART NUMBER	QTY	DESCRIPTION
<b>28323 LIGHTING GROUP,RMT</b>			
1	5037	6.00	REFLECTOR,AMBER
2	22081	1.00	SWITCH,BREAKAWAY
3	22085	1.00	LIGHT,TAIL,RH,MODIFIED
4	22086	1.00	LIGHT,TAIL,LH,MODIFIED
5	28322	1.00	<b>HARNESS,WIRE,LIGHTS,RMT (See Detail Following)</b>
6	28324	1.00	<b>HARNESS,WIRE,7 POLE PLUG (See Detail Following)</b>
7	28376	1.00	MOUNT,FUSE BLOCK
8	28377	1.00	ENCLOSURE,ELEC,4X4X6W/5 HOLES
9	33765	2.00	NUT,LK,ELEC CND,.500-14 NPT
10	34217	6.00	LIGHT,CLEARANCE,ARMORED,AMBER
11	35663	1.00	LIGHT BAR,RED,3 LIGHT
12	35896	2.00	FITT,CABLE 08MP,.500-.625
13	36349	10.00	TERM,PUSH-ON,.25,FEM,18-14,SLV
14	37094	1.00	BRACKET,LICENSE PLATE
15	37421	6.00	TERM,SOLDER SPLICE,22-14 AWG
16	37560	1.00	GROMMET,INS,.62 ID,1.38 HOLE
17	38856	4.00	CIRCUIT BREAKER,10 AMP,BLADE
18	38857	1.00	CIRCUIT BREAKER,30 AMP,BLADE
19	72766	1.00	FUSE BLOCK,BLADE,6-WAY
20	80036	5.00	NUT,HEX,.250-20
21	80192	5.00	CSHH,.250-20X.75,GR5
22	80824	20.00	NUT,HEX,#10-24
23	81160	18.00	SCR,SLFDRL,HH,#10X1.00,#3PT
24	871040202	20.00	MACH SCR,HH,#10-24X.75
25	33594-01	24.00	CLAMP,LOOP,.50 OD,REM CUSHION



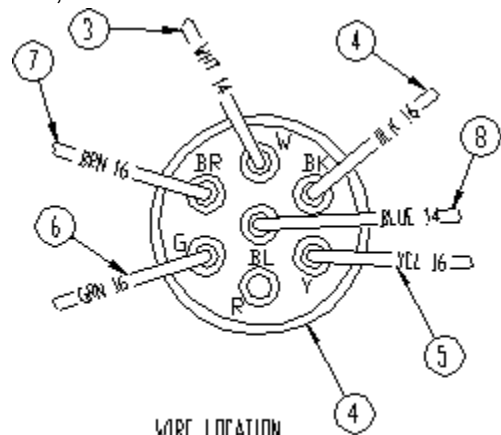
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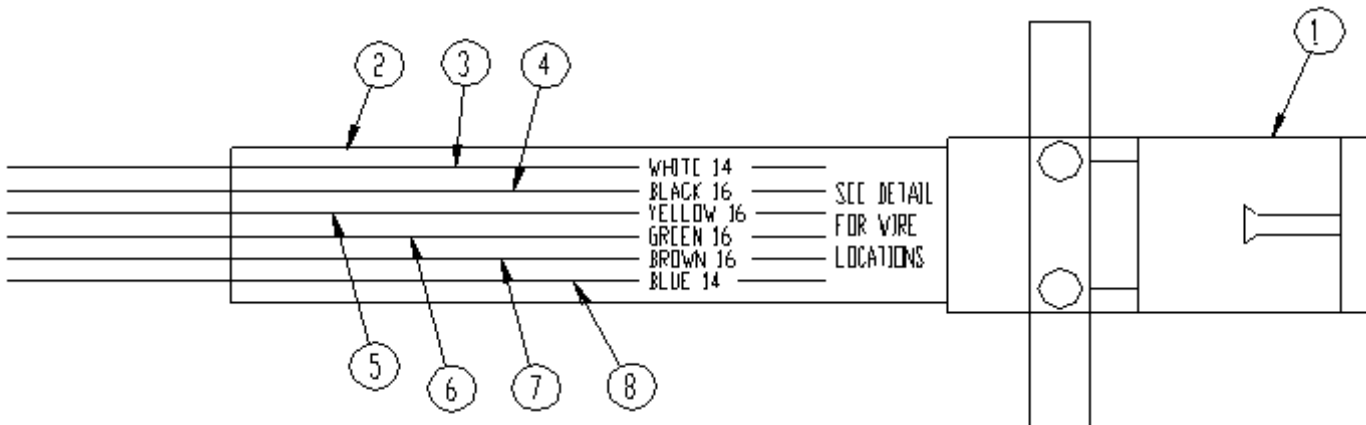
REF: 28322, 28324

ITEM	PART NUMBER	QTY	DESCRIPTION
<b>28322</b>			<b>HARNES,WIRE,LIGHTS,RMT</b>
1	33271-2	19.40	WIRE,16 GA,YELLOW
2	33271-1	44.40	WIRE,16 GA,BLACK
3	33271-3	25.90	WIRE,16 GA,BROWN
4	71862	16.60	WIRE,14 GA,WHITE
5	33271-4	21.60	WIRE,16 GA,GREEN
6	71062	19.30	WIRE,14 GA,BLUE
7	34203	2.20	WIRE,14 GA,ORANGE
8	33589	9.80	LOOM,SPLIT,CONVOLUTED,.500
9	71060	46.20	LOOM,SPLIT,CONVOLUTED,.250
10	35139	2.00	CONNECTOR,SEALED,TOWER,2-PIN
11	36165	4.00	TERM,SEALED CONN,16-14 GA,FEM
12	36623	6.00	SEAL,CABLE,14 GA
13	35138	3.00	CONNECTOR,SEALED,SHROUD,2-PIN
14	36164	6.00	TERM,SEALED CONN,16-14 GA,MALE
15	36166	4.00	SEAL,CABLE,18-16 GA
16	33607	1.00	TERM,RING,16-14 GA,.250 STUD
17	33609	1.00	TERM,RING,16-14 GA,.375 STUD

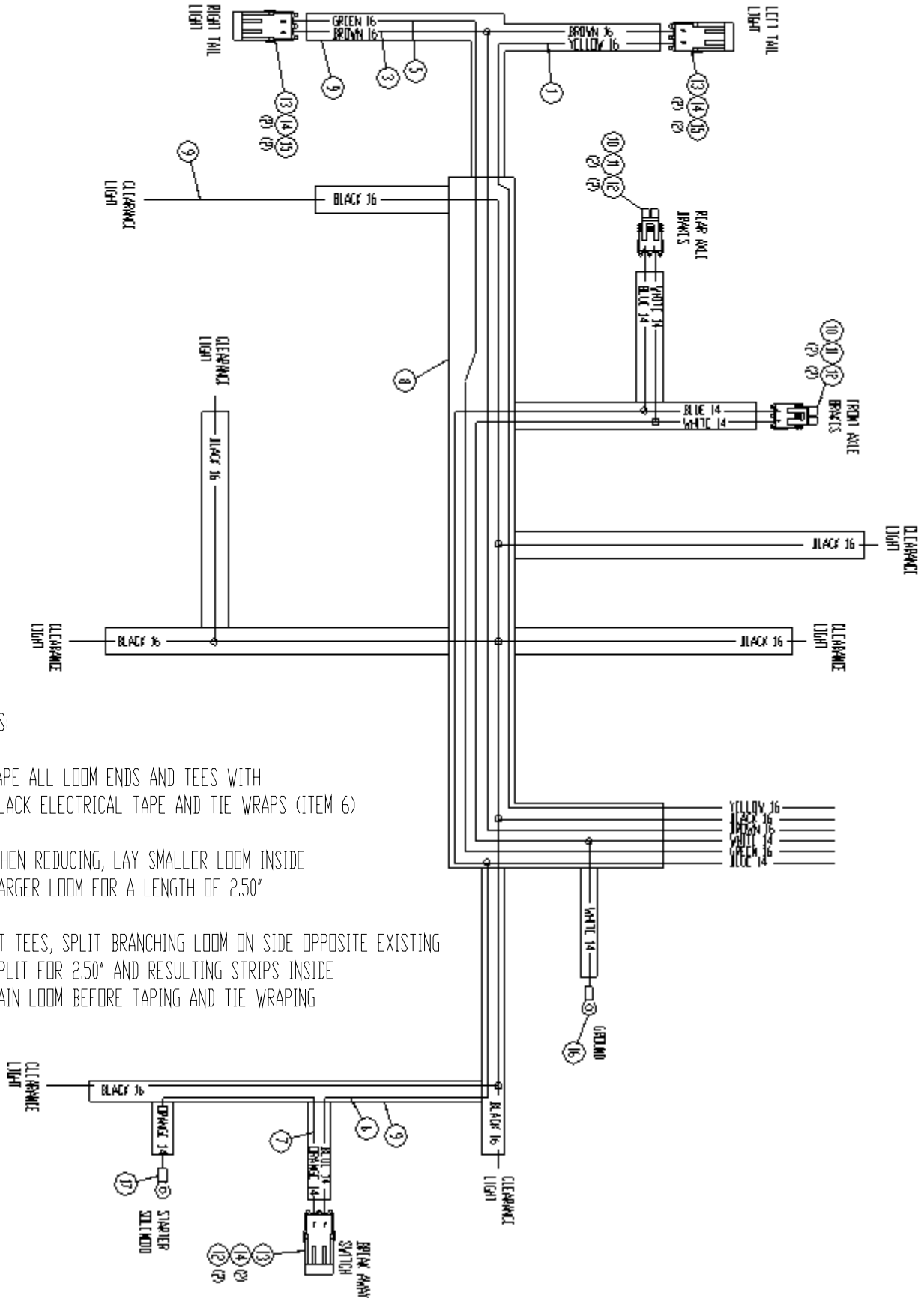
<b>28324</b>			<b>HARNES,WIRE,7 POLE PLUG</b>
1	34804	1.00	PLUG,ELEC,7 POLE,MALE,SPRING
2	38875	8.00	LOOM,WOVEN,BITUM CTD,.50 ID
3	71862	8.50	WIRE,14 GA,WHITE
4	33271-1	8.50	WIRE,16 GA,BLACK
5	33271-2	8.50	WIRE,16 GA,YELLOW
6	33271-4	8.50	WIRE,16 GA,GREEN
7	33271-3	8.50	WIRE,16 GA,BROWN
8	71062	8.50	WIRE,14 GA,BLUE



WIRE LOCATION  
7 POLE PLUG



REF: 28322

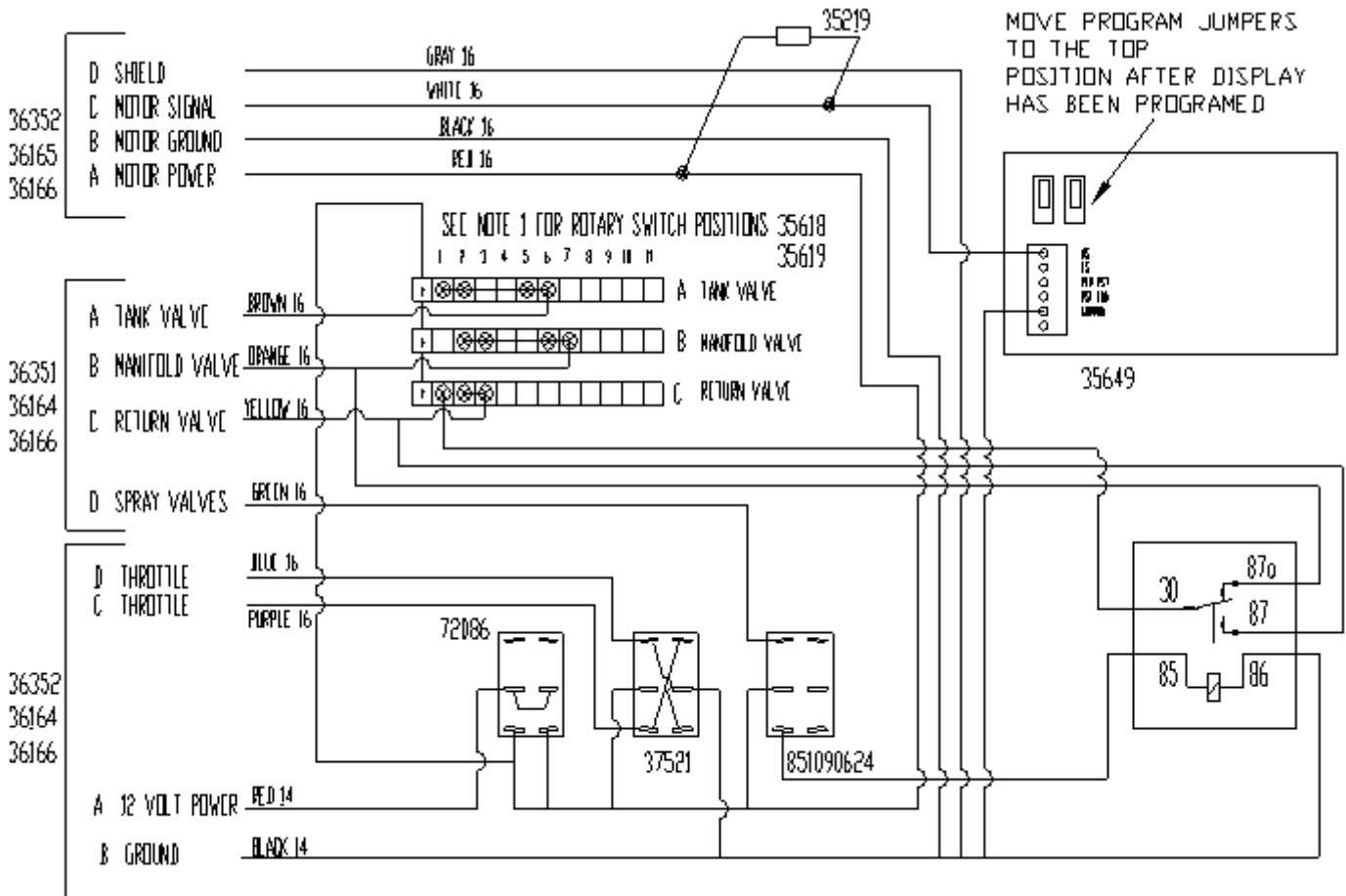


NOTES:

- 1 TAPE ALL LOOM ENDS AND TEES WITH BLACK ELECTRICAL TAPE AND TIE WRAPS (ITEM 6)
- 2 WHEN REDUCING, LAY SMALLER LOOM INSIDE LARGER LOOM FOR A LENGTH OF 2.50"
- 3 AT TEES, SPLIT BRANCHING LOOM ON SIDE OPPOSITE EXISTING SPLIT FOR 2.50" AND RESULTING STRIPS INSIDE MAIN LOOM BEFORE TAPING AND TIE WRAPING

REF: 28343

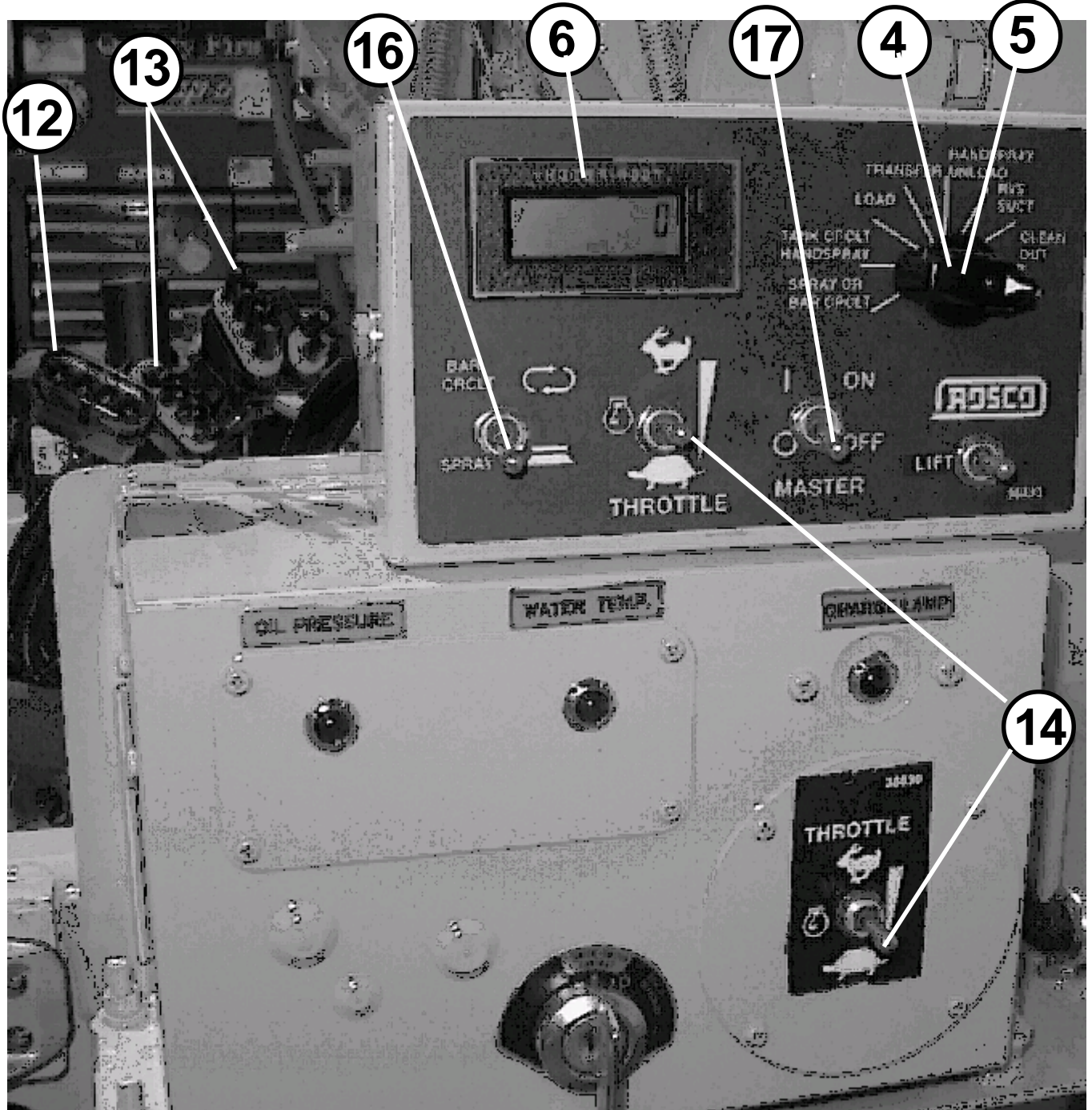
ITEM	PART NUMBER	QTY	DESCRIPTION
<b>28343</b>			<b>CONTROL BOX,RMT,CAB</b>
1	28329	1.00	CONTROL BOX BACK
2	28330	1.00	COVER,RMT CONTROL BOX
3	35219	1.00	RESISTOR,1K OHM,1WATT
4	35618	1.00	SWITCH,RTRY,4 POLE,11 POS
5	35619	1.00	KNOB,D-FLAT SHAFTS
6	35649	1.00	METER,RATE/COUNTER,PROGRAMABLE
7	36085	1.00	RELAY,SPDT,40AMP,12VDC
8	36086	1.00	BRACKET,RELAY MOUNT
9	36164	8.00	TERM,SEALED CONN,16-14 GA,MALE
10	36165	4.00	TERM,SEALED CONN,16-14 GA,FEM
11	36166	12.00	SEAL,CABLE,18-16 GA
12	36351	1.00	CONNECTOR,SEALED,SHROUD,4-PIN
13	36352	2.00	CONNECTOR,SEALED,TOWER,4-PIN
14	37521	1.00	SWITCH,TOGGLE,DPDT,3-POS,MOM
15	38833	1.00	DECAL,CONT BOX,CAB,RMT
16	72086	1.00	SWITCH,TOGGLE,DPDT,2-POS
17	851090624	1.00	SWITCH,TOGGLE,SPDT,2-POS



REF: 28343

NOTES WITH SCHEMATIC PREVIOUS PAGE:

- 1. ROTARY SWITCH FUNCTION POSITIONS:
  - 1. SPRAY AND BAR CIRCULATE
  - 2. TANK CIRCULATE
  - 3. LOAD
  - 4. TRANSFER
  - 5. HANDSPRAY/UNLOAD
  - 6. REVERSE SUCTION
  - 7. CLEAN OUT
  - 8. OFF
  - 9. THRU 11. BLOCKED
- 2. MOUNT ALL SWITCHES AS SHOWN WHEN VIEWED FROM INSIDE CONTROL BOX FROM COVER.
- 3. PROGRAM P/N 35649 FOR "RATE" AND CALIBRATE AT 0.538.
- 4. PIGTAIL EACH PLUG OUT THE BACK OF BOX APPROXIMATELY 3 FT.
- 5. SEE DWG. 28597 FOR WIRING OF LIFT SWITCH

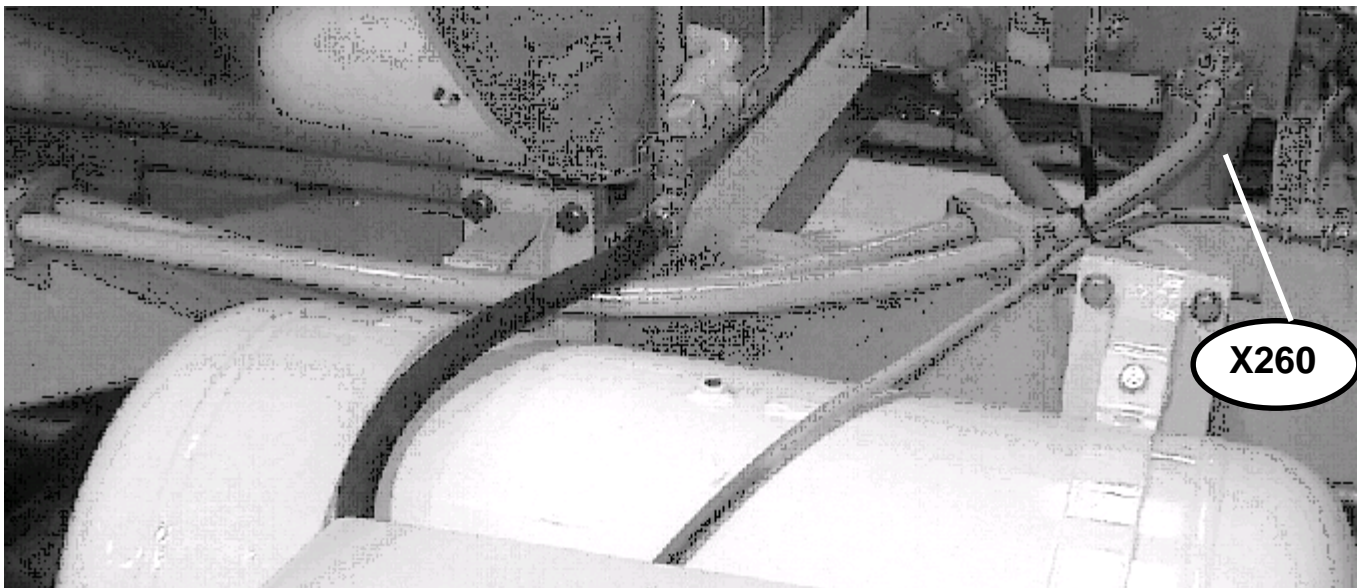


REF: 28345

ITEM	PART NUMBER	QTY	DESCRIPTION
<b>28345</b>			<b>HYDRAULIC GROUP</b>
1	<b>28281</b>	<b>1.00</b>	<b>HYD TANK,W/M (See Detail)</b>
2	33148	1.00	STRAINER,SUCT,2NPT,25GPM,100ME
3	X259	1.00	FILTER ASSY
4	99600	1.00	PIPE,NIPPLE,12XCLOSE
5	99459	1.00	PIPE,BUSH,16MP-16FP,MI
6	36648	1.00	VLV,MOTOR
7	38779	1.00	PUMP,HYD,GEAR,1.2 CU IN
8	22750	1.00	RESERVOIR,CLEANOUT COVER
9	99537	1.00	PIPE,PLUG,08MP,SQ HD,MI
10	31886	1.00	GAUGE,SIGHT,12NPT
11	<b>38858</b>	<b>1.00</b>	<b>KIT,HOSE &amp; ADAPTER,RMT,TEXDOT (See Detail)</b>
12	28359	1.00	COVER,HYD VLV,RMT
13	38307-01	1.00	HANDLE KIT
NS	35254	1.00	PIPE,PLUG,06MP,SQ HD,MAGNETIC
<b>38858</b>			<b>KIT,HOSE &amp; ADAPTER</b>
101	38871-126	1.00	HOSE,12 12FJ-12FJ,3000
102	38871-166	1.00	HOSE,12 12FJ-12FJ,3000
103	38872-72	2.00	HOSE,12 12FJ-12FJ90,3000
104	38873-50	1.00	HOSE,16 16FJ-16FJ,250
105	72178	1.00	FITT,STR 12MJ-12MP
106	71775	2.00	FITT,90 12MJ-12MB
107	34083	3.00	FITT,90 12MJ-10MB
108	71882	2.00	FITT,STR 12MJ-10MB
109	35781	1.00	FITT,90 16MJ-20MP
110	6250	1.00	FITT,90 16MJ-12MB

**28281 REV. 0 HYDRAULIC TANK**

**X260 ELEMENT,HYD**

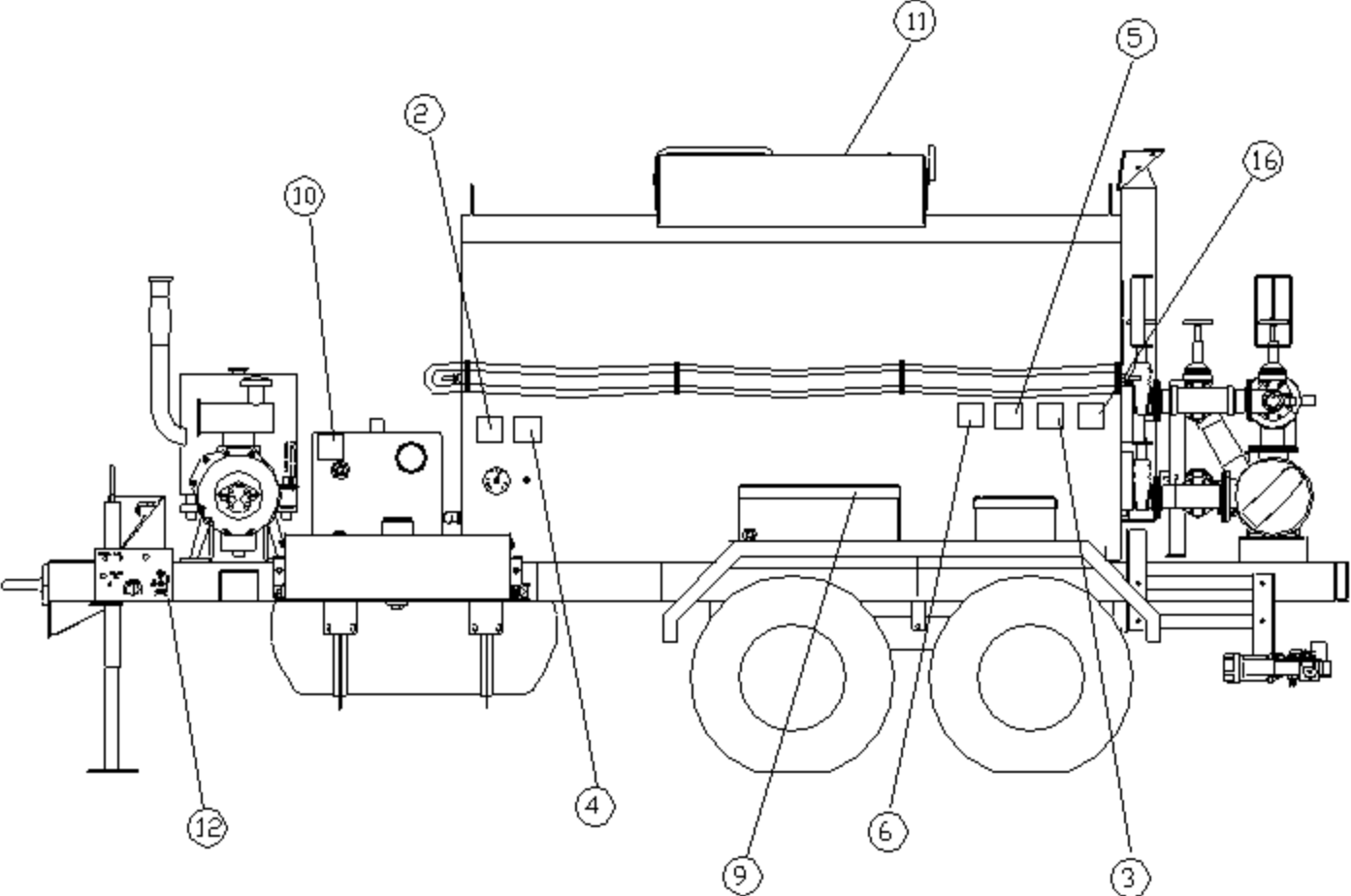




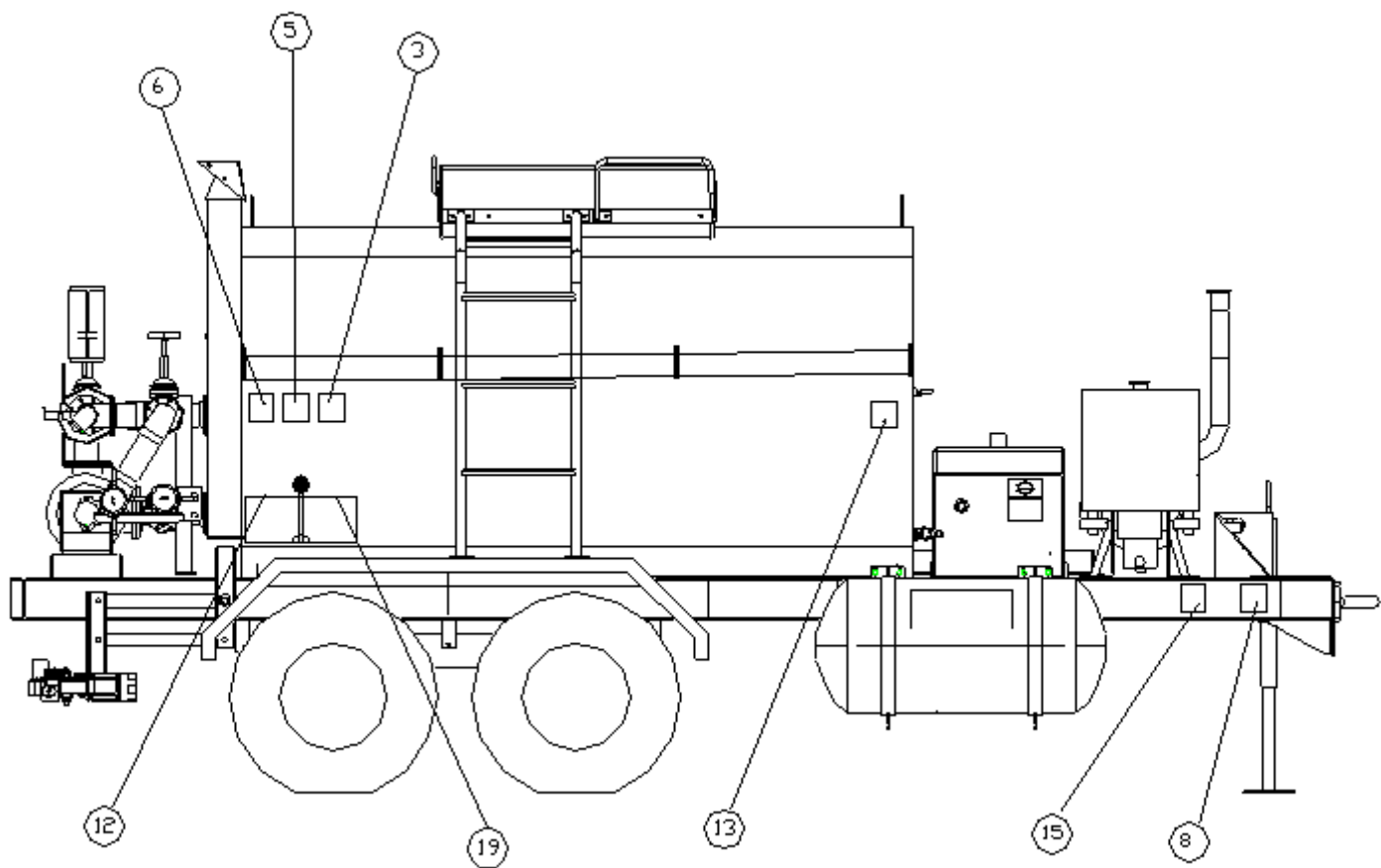
REF: 28379

ITEM	PART NUMBER	QTY	DESCRIPTION
	<b>28379</b>		<b>DECAL GROUP,RMT</b>
1	33908	2.00	DECAL,ROSCO LOGO,LARGE,BLACK
2	35684	1.00	DECAL,OPERATING CAUTIONS
3	35685	2.00	DECAL PLATE,DANGER,EXPLN HAZ
4	35688	1.00	DECAL,WARNING,FIRE HAZARD
5	35689	2.00	DECAL PLATE,WRN,HOT MAT'L HAZ
6	35690	2.00	DECAL PLATE,WRN,HOT SURF HAZ
7	35943	1.00	DECAL,WARNING,GUARDS
8	36624	1.00	DECAL PLATE,PROD IDENT NO,MAXI
9	36986	1.00	DECAL,SPRAY NOZZLE GUIDE
NS	37556	9.00	DECAL,STRIPE,RED-ORANGE,5"
10	37664	1.00	DECAL,HYD OIL,SIGHT GLASS
11	38480	1.00	DECAL,DANGER,CONFINED SPACE
12	38839	1.00	DECAL,THROTTLE
13	38864	2.00	DECAL,VALVE ORIENTATION
14	38877	1.00	DECAL,MAINTENANCE CHART,RMT
15	38878	1.00	DECAL,TRAILER VIN,RMT
16	38880	1.00	DECAL,SAFETY INSTRUCTION
NS	81159	4.00	TACK,DIA.146/.104X.04 GRIP LG
NS	81160	29.00	SCR,SLFDRL,HH,#10X1.00,#3PT
17	D7	1.00	DECAL,HYDROSTATIC
18	D13	1.00	DECAL,CAUTION,TOWING CHAINS
19	D30	1.00	DECAL,FWD,NEUTRAL,REVERSE
20	36333	2.00	PLACARD HOLDER,ALUMINUM
21	37270	2.00	PLACARD,NO.F,"1000,PLASTIC
NS	28583		PLATE,PLACARD MOUNT

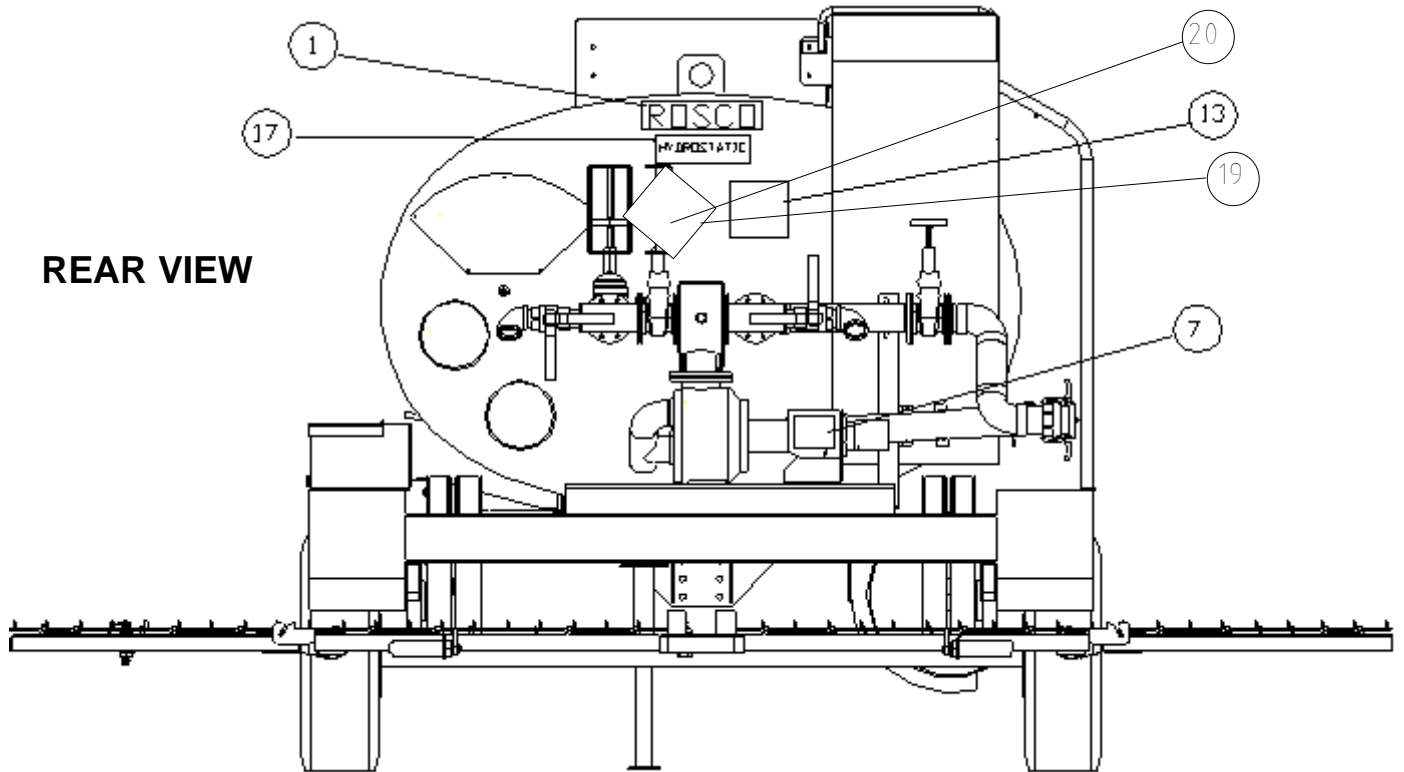
LEFT SIDE



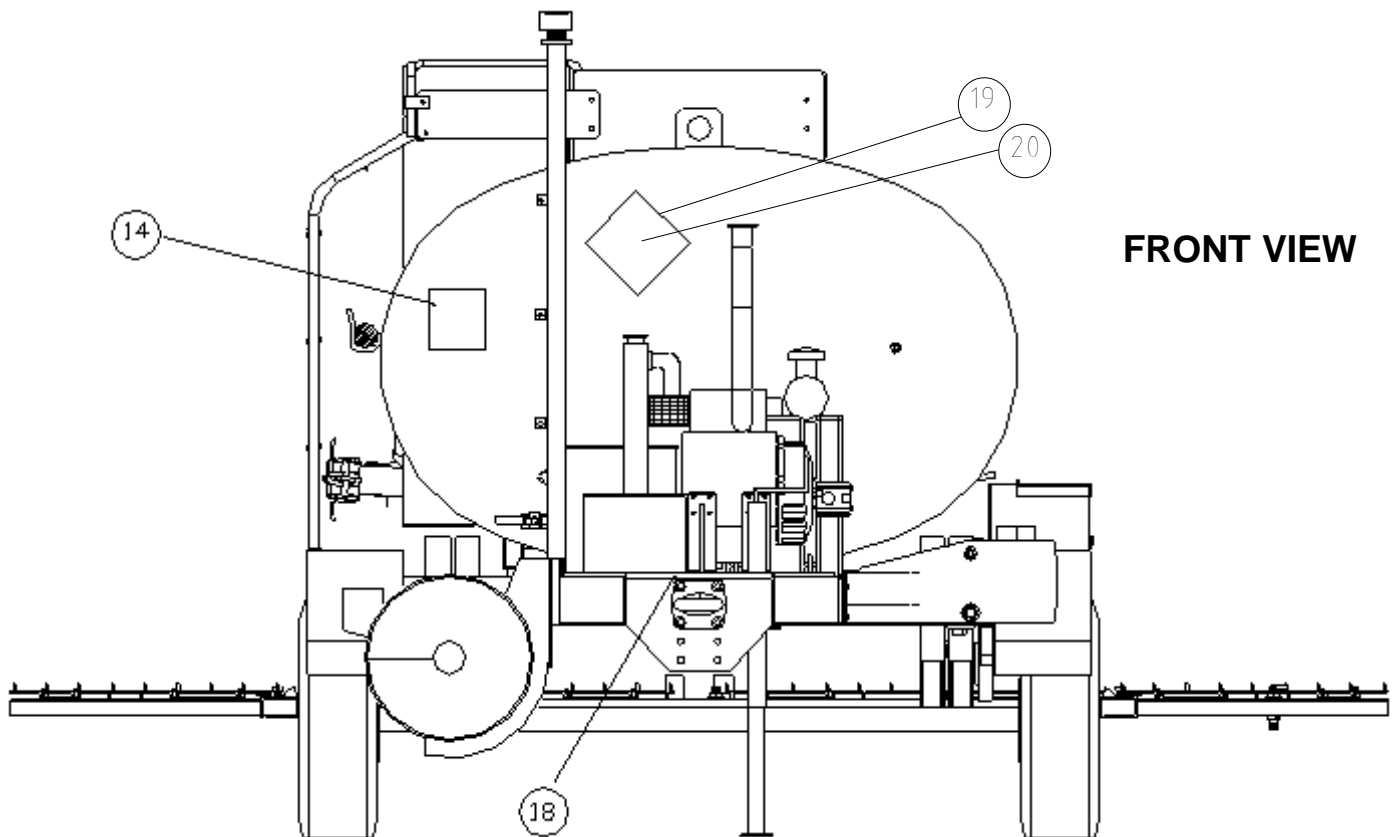
### RIGHT SIDE



REAR VIEW



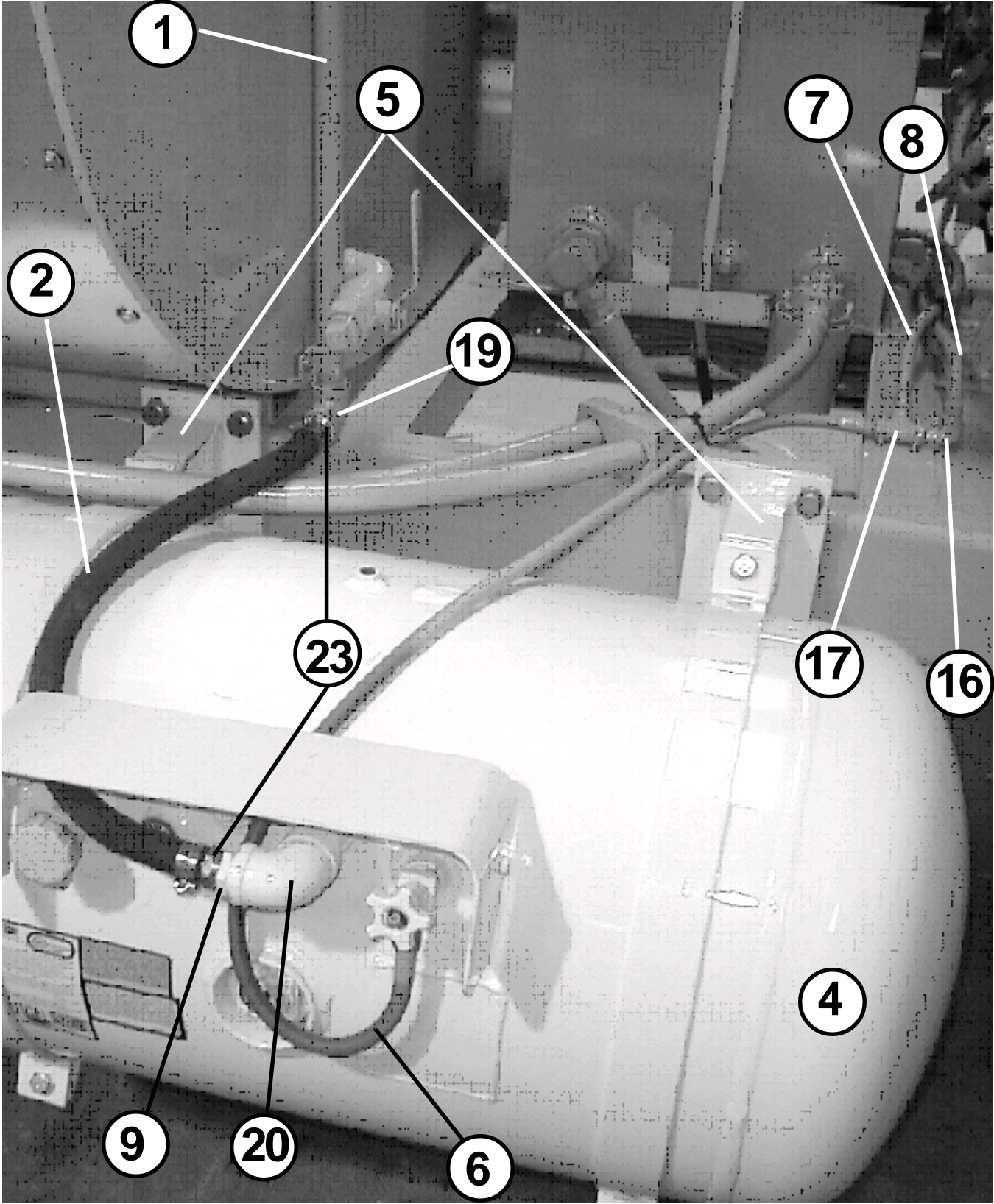
FRONT VIEW



REF: 28415

ITEM	PART NUMBER	QTY	DESCRIPTION
	<b>28415</b>		<b>LP TANK &amp; PLUMBING,FRAME MT</b>
1	26068	1.00	PIPE,LP RELIEF LINE
2	31178	3.00	HOSE,12,PUSH-ON,250
3	33064	2.00	U-BOLT,.312-18,1.50IW,2.19IL
4	34079	1.00	TANK,52 GAL LPG (TANK ONLY)
5	34080	1.00	BRACKETS (2), 20", TANK MTG
6	35657	1.00	HOSE,04X48,350PSI,SEE DWG
7	38860	1.00	HOSE,04 04MP-04MP,350,LPG,165"
8	38861	1.00	HOSE,04 04MP-4MP,350,LPG,33.0"
9	38866	1.00	ADAPTER,PIPEAWAY,1-1NPT
10	38888	1.00	CAP,RAIN,1"NPT
11	6120	1.00	VLV,NEEDLE,04 FEMALE,NPT
12	80144	16.00	WASHER,TYPE A PLAIN,.500
13	80255	8.00	CSHH,.500-13X2.00,GR5
14	80354	8.00	NUT,FLEXLOC,.500-13,FULL,LT
15	90744	1.00	PIPE,NIPPLE,04XCLOSE,300#
16	90763	1.00	PIPE,90,04FP-04MP,300#
17	90772	1.00	PIPE,TEE,04FP,300#
18	99457	2.00	PIPE,BUSH,16MP-12FP,MI
19	99513	1.00	PIPE,90,12FP,MI
20	99514	1.00	PIPE,90,16FP,MI
21	99606	1.00	PIPE,NIPPLE,16XCLOSE
22	X126	5.00	FITT,STR 04MP-04FPX
23	X296	2.00	FITT,STR 12MP-12HB,BRASS

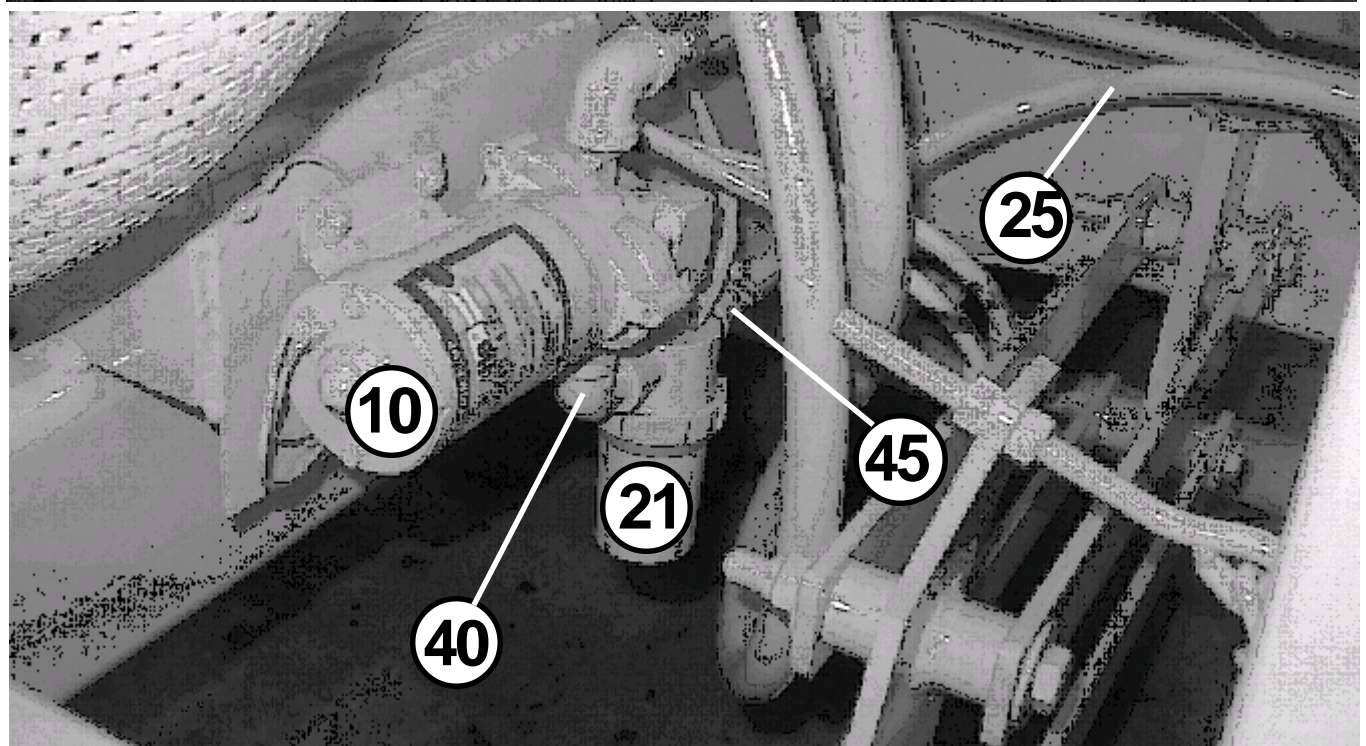
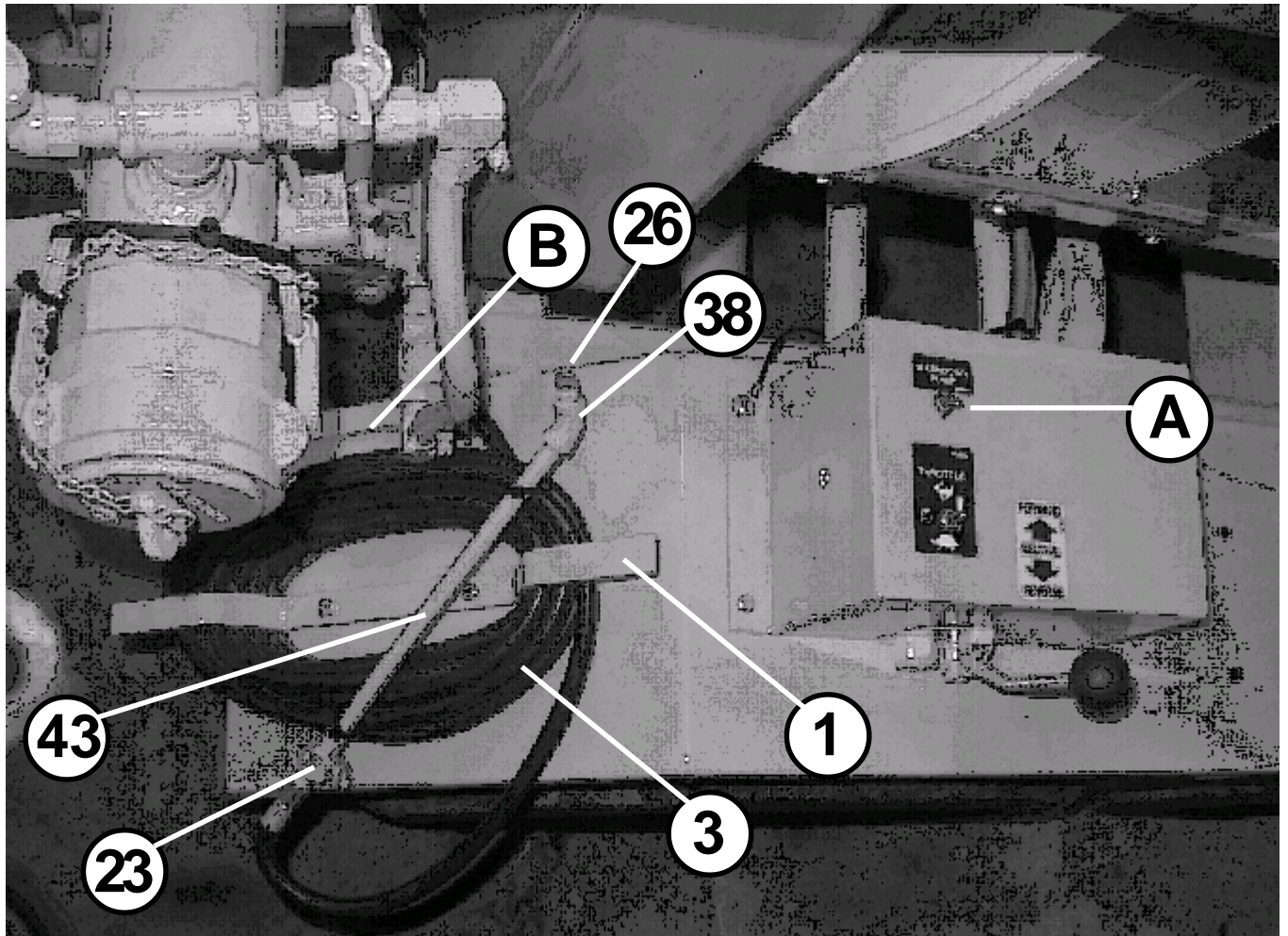
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REF: 28493

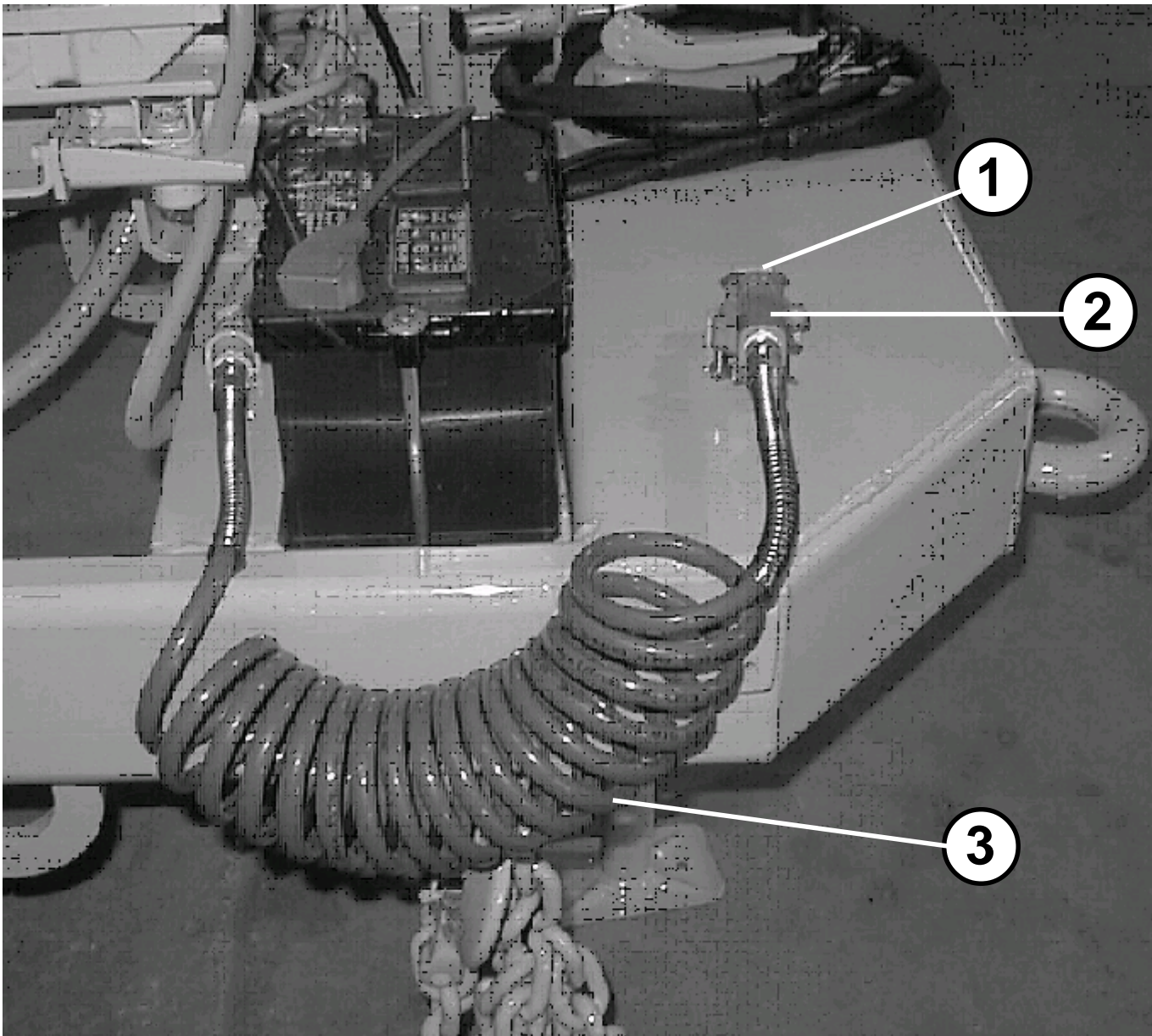
ITEM	PART NUMBER	QTY	DESCRIPTION
	<b>28493</b>		<b>WASHDOWN SYSTEM,RMT</b>
A	000200190	1.00	SWITCH,TOGGLE,SPST,2-POS
B	26072	1.00	HOLSTER,WASHDOWN WAND
0	33600	4.00	TERM,PUSH-ON,.25,FEM,16-14 GA
0	36085	1.00	RELAY,SPDT,40AMP,12VDC
0	36086	1.00	BRACKET,RELAY MOUNT
0	36164	1.00	TERM,SEALED CONN,16-14 GA,MALE
0	36165	1.00	TERM,SEALED CONN,16-14 GA,FEM
0	36166	2.00	SEAL,CABLE,18-16 GA
0	37089	1.00	CONNECTOR,SEALED,SHROUD,1-PIN
0	37090	1.00	CONNECTOR,SEALED,TOWER,1-PIN
0	37224	3.00	TERM,RING,22-16GA,#10 STUD
0	38841	1.00	DECAL,WASHDOWN PUMP
0	71719	1.00	MACH SCR,PH,#8-32X.50
0	80792	1.00	WASHER,SPLIT LOCK,#8
0	80793	1.00	NUT,HEX,#8-32
0	80995	9.00	WASHER,TYPE A PLAIN,#10
1	16499	1.00	HOOK,WASH DOWN HOSE
3	32881	1.00	HOSE,04X300,04FPX-04RE,350
4	33163	2.00	CLAMP,HOSE,.50-.91,WORM,#08
6	33328	1.00	FITT,90 08MP-08HB,CRIMPED
7	33596	4.00	TIE WRAP,.188X7.5
10	34775	1.00	PUMP,DIAPHRAGM,12 VDC
21	36926	1.00	STRAINER,LQD,100MESH,NYL,08FP
23	6079	1.00	VLV,PLUG,04MPX04FP
24	6298	1.00	FITT,STR 04MP-09MPF,LH LP GAS
25	6352	5.00	HOSE,08,PUSH-ON,250
26	6538	1.00	NOZZLE,V-JET-04 NPT
30	80141	4.00	WASHER,TYPE A PLAIN,.312
31	80207	2.00	CSHH,.312-18X.75,GR5
32	80351	2.00	NUT,FLEXLOC,.312-18,FULL,LT
35	80924	4.00	NUT,FLEXLOC,#10-24,FULL,LT
37	80997	4.00	MACH SCR,PH,#10-24X2.00
38	99503	1.00	PIPE,45,04FP,MI
39	99512	1.00	PIPE,90,08FP,MI
40	99526	1.00	PIPE,90,08MP-O8FP,MI
41	99569	1.00	PIPE,TEE,08FP,MI
42	99596	1.00	PIPE,NIPPLE,08XCLOSE
43	99636	1.00	NIPPLE,04X11.00,STD
44	99980	1.00	PIPE,BUSH,08MP-04FP,STL
45	X427	1.00	FITT,STR 08MP-08HB,CRIMPED

REF: 28493



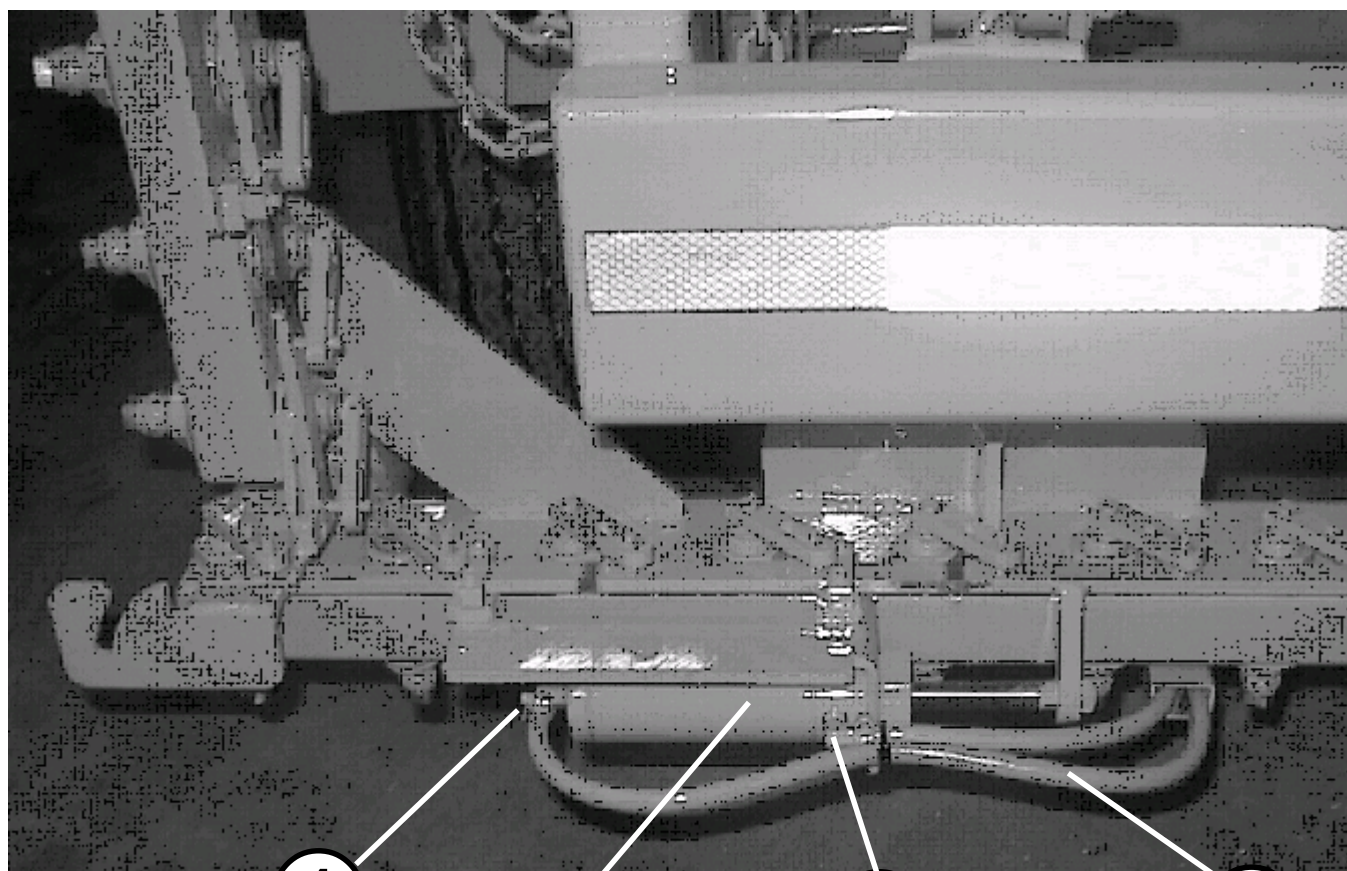
REF: 28516

ITEM	PART NUMBER	QTY	DESCRIPTION
	<b>28516</b>		<b>AIR GROUP,RMT,GLADHAND</b>
1	38867	1.00	GLADHAND HOLDER
2	38868	1.00	GLADHAND,SERVICE,ALUM,08NPT
3	38869	1.00	HOSE ASSY,AIR BRAKE,12"COILED



REF: 28571

ITEM	PART NUMBER	QTY	DESCRIPTION
	<b>28571</b>		<b>AIR CONTROL GROUP,RMT</b>
1	31971	4.00	FITT,90 04MP-04HB,CRIMPED
2	33115	6.00	FITT,45 04MJ-04MP
3	33162	2.00	CLAMP,HOSE, .44-.78,WORM,#06
4	33277	4.00	CLAMP,HOSE, .22-.62,WORM,#04
5	33543	10.00	FITT,STR 04MP-04MS,BRASS
6	38193	60.00	HOSE,04,LOW PRESSURE,BLACK
7	38579	20.00	HOSE,06,LOW PRESS PUSH ON
8	38916	1.00	VLV,SOL,AIR,5 POS,ASSY
9	70957	16.00	FITT,STR 04FJX-04HB,PUSH-ON
10	99448	6.00	PIPE,BUSH,06MP-04FP,STL
11	99492	1.00	PIPE,CPLG,08FP
12	99510	1.00	PIPE,90,04FP,MI
13	99535	1.00	PIPE,PLUG,04MP,SQ HD,MI
14	99592	1.00	PIPE,NIPPLE,04X1.50
15	X144	1.00	FITT,STR 08MP-06HB,CRIMPED
16	X300	1.00	FITT,STR 04MP-06HB,PUSH-ON

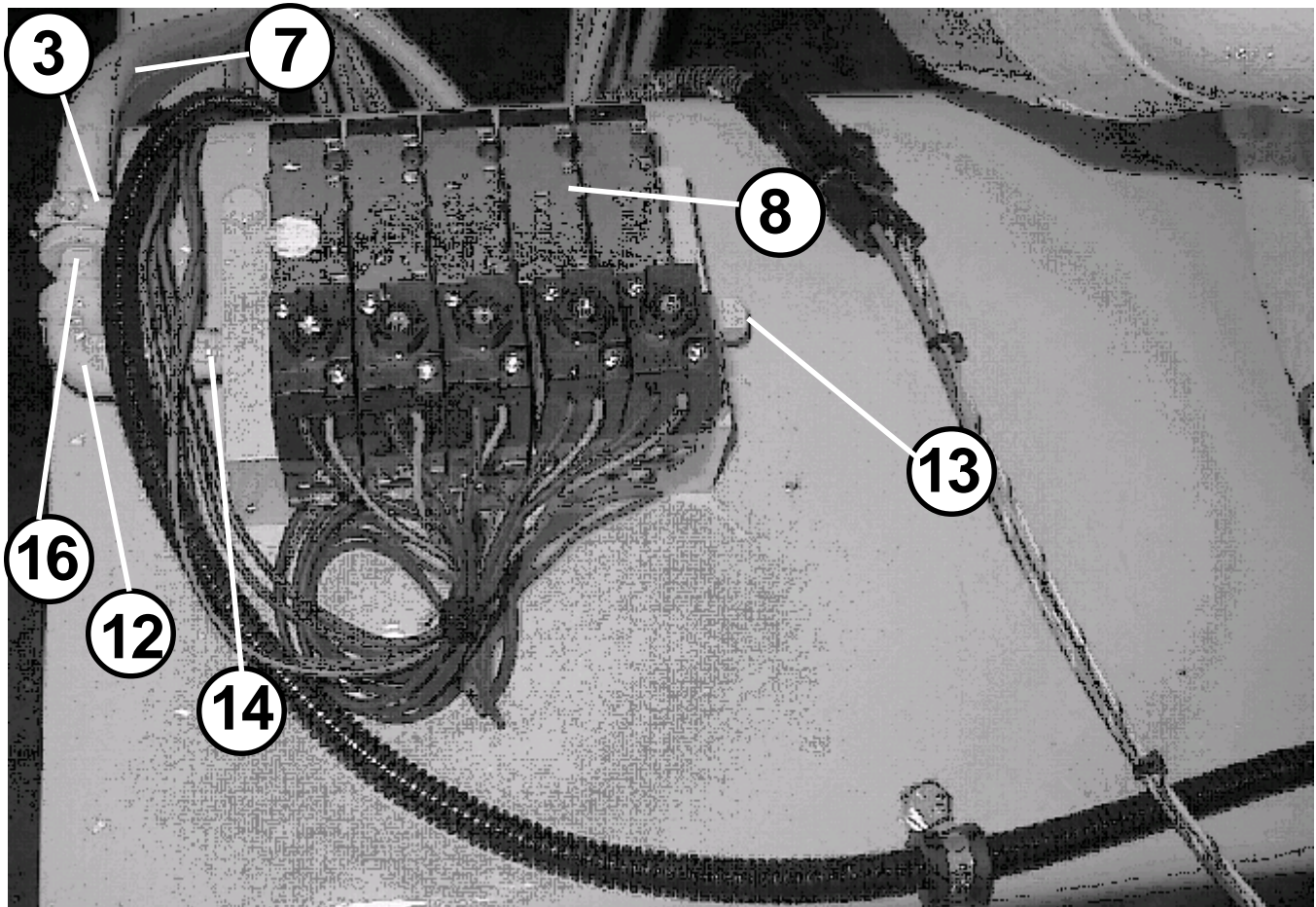


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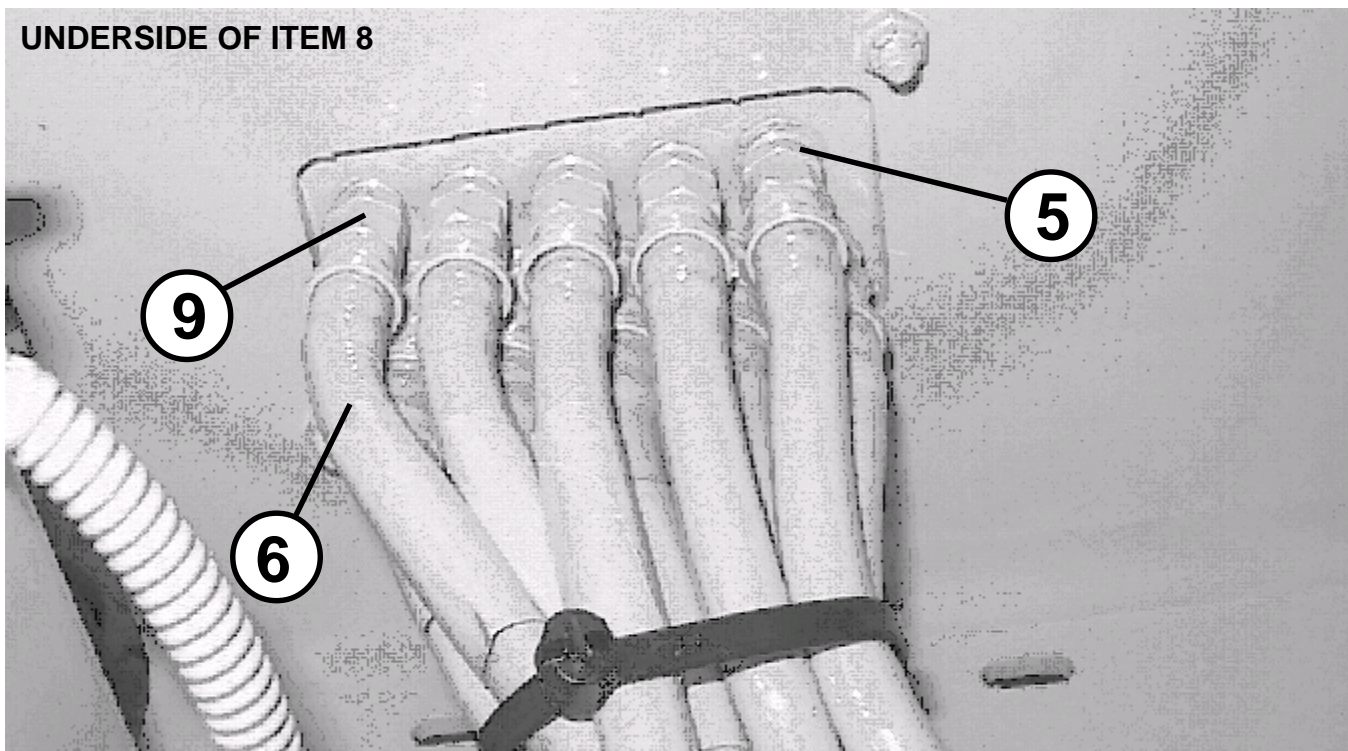
NOTE:  
SEE SPRAYBAR GROUP.  
PART #37364

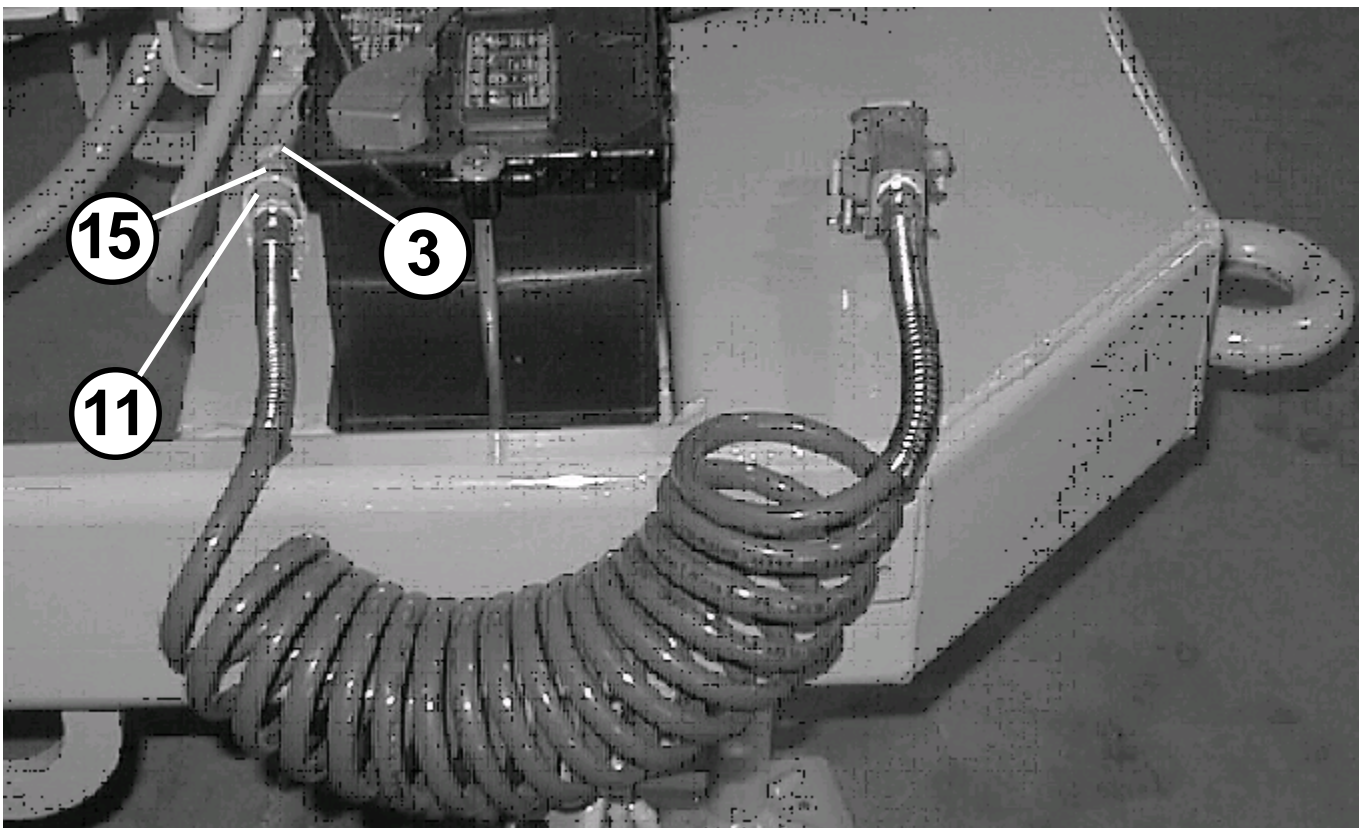
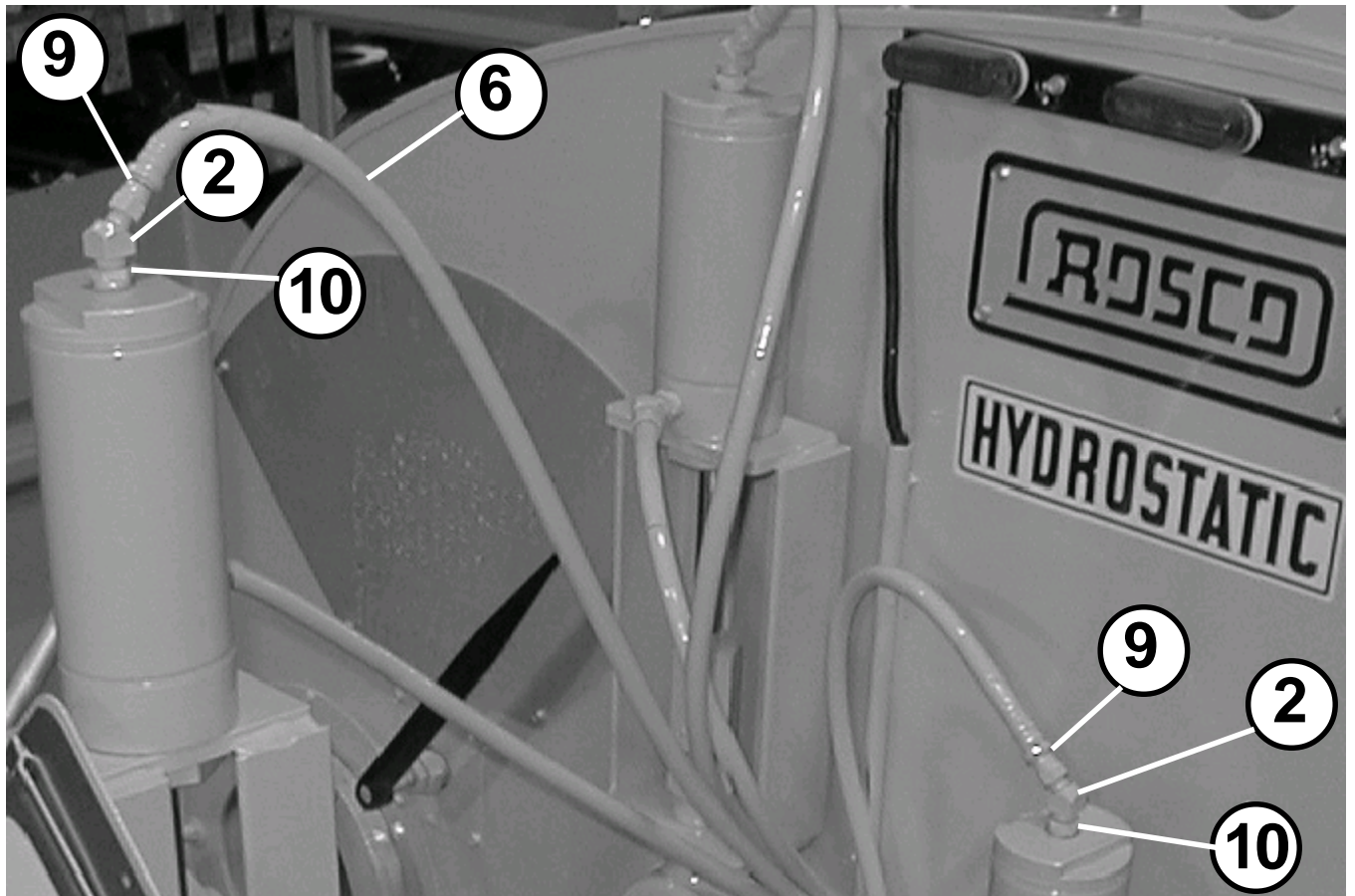
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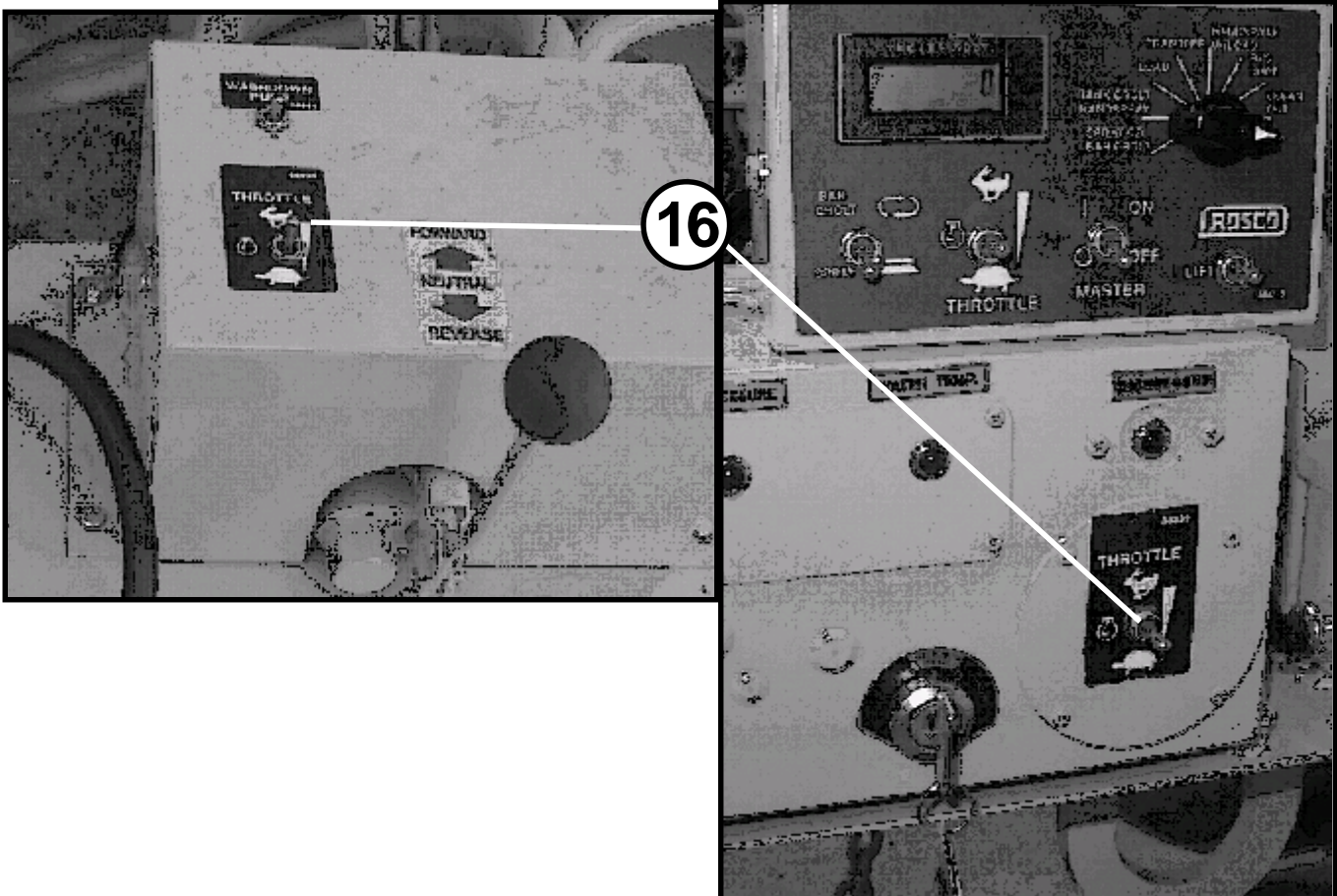
UNDERSIDE OF ITEM 8





REF: 28515

ITEM	PART NUMBER	QTY	DESCRIPTION
<b>28515</b>			<b>CONT GROUP,WIRING,RMT</b>
1	28411	1.00	HARNESS,TRUCK,RMT
2	28412	1.00	HARNESS,MOTOR,RMT
3	28413	1.00	HARNESS,VALVES,RMT
4	28414	1.00	HARNESS,CONT BOX,RMT
5	28526	1.00	HARNESS,BURNER/FLTR,RMT
6	28527	1.00	HARNESS,POWER,RMT
7	28528	1.00	HARNESS,THROTTLE,RMT
8	28536	1.00	HARNESS,REAR CONT,RMT
9	35138	2.00	CONNECTOR,SEALED,SHROUD,2-PIN
10	36164	18.00	TERM,SEALED CONN,16-14 GA,MALE
11	36166	18.00	SEAL,CABLE,18-16 GA
12	36340	1.00	FUSE,BLADE,10AMP,ATC-10
13	36342	1.00	FUSE,BLADE,20AMP,ATC-20
14	36350	1.00	CONNECTOR,SEALED,SHROUD,3-PIN
15	36351	3.00	CONNECTOR,SEALED,SHROUD,4-PIN
16	37521	2.00	SWITCH,TOGGLE,DPDT,3-POS,MOM
17	37812	1.00	SEAL,CABLE,14 GA SXL
18	38667	1.00	TERM,SEALED CONN,12 GA,MALE
19	38897	2.00	FUSE,BLADE,7.5AMP,ATC-7.5
20	72766	1.00	FUSE BLOCK,BLADE,6-WAY

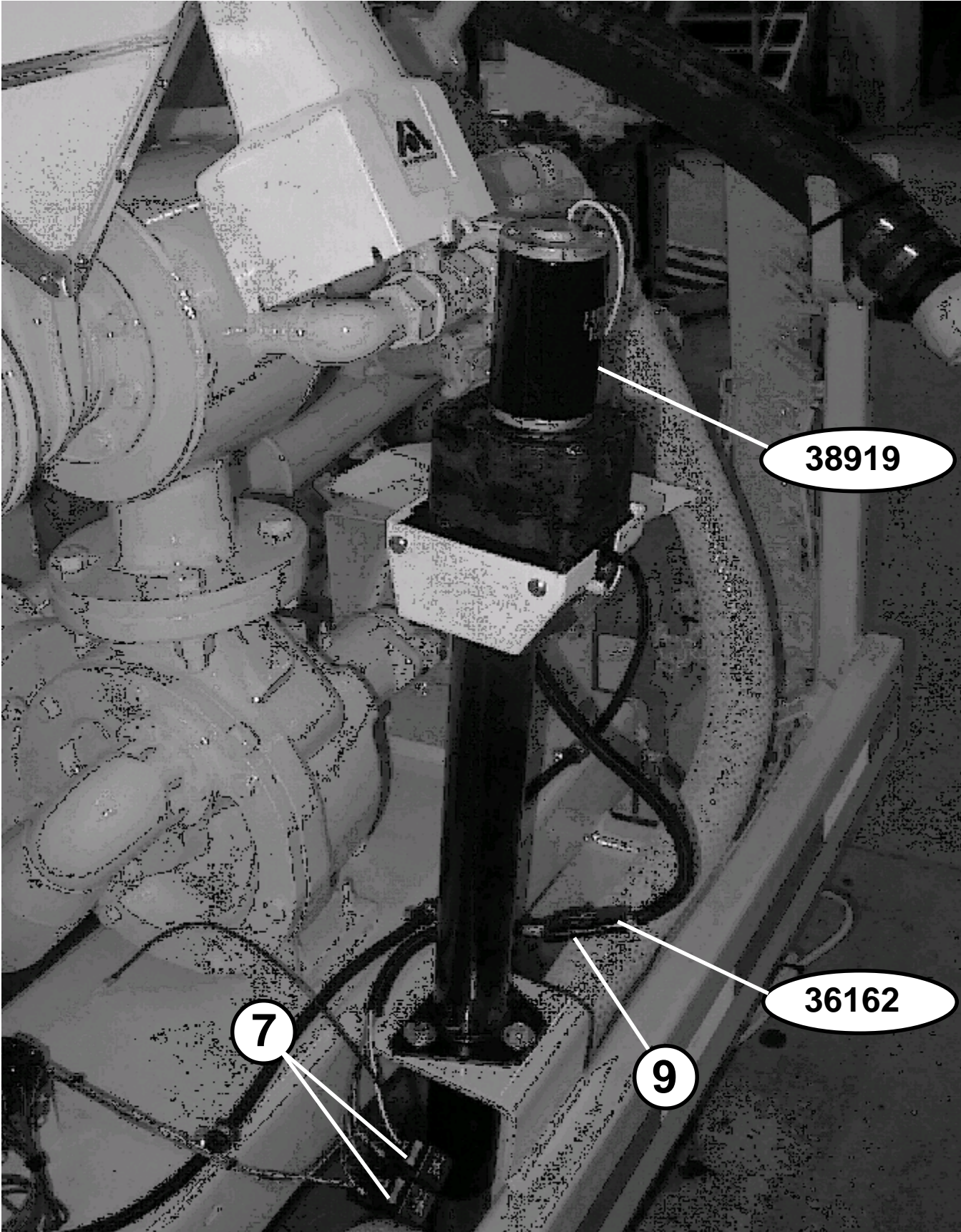




REF: 28597

ITEM	PART NUMBER	QTY	DESCRIPTION
	<b>28597</b>		<b>JACK GROUP,ELECTRIC POWER</b>
1	28598	1.00	HARNESS,ELECTRIC JACK (See Detail Following)
2	28623	1.00	JACK,POWER,REWORK (See Detail Following)
3	33271-14	3.00	WIRE,16 GA,YELLOW/RED STRIPE
4	33271-21	3.00	WIRE,16 GA,ORANGE/YEL STRIPE
5	33271-9	1.00	WIRE,16 GA,PURPLE
6	35139	1.00	CONNECTOR,SEALED,TOWER,2-PIN
7	36085	2.00	RELAY,SPDT,40AMP,12VDC
8	36086	2.00	BRACKET,RELAY MOUNT
9	36163	1.00	CONNECTOR,SEALED,TOWER,6-PIN
10	36165	9.00	TERM,SEALED CONN,16-14 GA,FEM
11	36166	9.00	SEAL,CABLE,18-16 GA
12	36218	1.00	FUSE,BLADE,30AMP,ATC-30
13	36252	1.00	SWITCH,TOGGLE,SPDT,3-POS,MOM
14	36300	1.00	CONNECTOR,SEALED,TOWER,3-PIN
15	36461	1.00	PLUG,CAVITY,SEALED CONN
16	37089	1.00	CONNECTOR,SEALED,SHROUD,1-PIN
17	37812	2.00	SEAL,CABLE,14 GA SXL
18	38667	1.00	TERM,SEALED CONN,12 GA,MALE
19	38668	1.00	TERM,SEALED CONN,12 GA,FEM
20	71065	1.00	WIRE,14 GA,RED
21	71066	1.00	WIRE,14 GA,YELLOW
22	71861-2	3.00	WIRE,10 GA,RED





REF: 28597

ITEM	PART NUMBER	QTY	DESCRIPTION
	<b>28597</b>		<b>JACK GROUP,ELECTRIC POWER</b>
1	28598	1.00	HARNESS,ELECTRIC JACK
2	28623	1.00	JACK,POWER,REWORK
3	33271-14	3.00	WIRE,16 GA,YELLOW/RED STRIPE
4	33271-21	3.00	WIRE,16 GA,ORANGE/YEL STRIPE
5	33271-9	1.00	WIRE,16 GA,PURPLE
6	35139	1.00	CONNECTOR,SEALED,TOWER,2-PIN
7	36085	2.00	RELAY,SPDT,40AMP,12VDC
8	36086	2.00	BRACKET,RELAY MOUNT
9	36163	1.00	CONNECTOR,SEALED,TOWER,6-PIN
10	36165	9.00	TERM,SEALED CONN,16-14 GA,FEM
11	36166	9.00	SEAL,CABLE,18-16 GA
12	36218	1.00	FUSE,BLADE,30AMP,ATC-30
13	36252	1.00	SWITCH,TOGGLE,SPDT,3-POS,MOM
14	36300	1.00	CONNECTOR,SEALED,TOWER,3-PIN
15	36461	1.00	PLUG,CAVITY,SEALED CONN
16	37089	1.00	CONNECTOR,SEALED,SHROUD,1-PIN
17	37812	2.00	SEAL,CABLE,14 GA SXL
18	38667	1.00	TERM,SEALED CONN,12 GA,MALE
19	38668	1.00	TERM,SEALED CONN,12 GA,FEM
20	71065	1.00	WIRE,14 GA,RED
21	71066	1.00	WIRE,14 GA,YELLOW
22	71861-2	3.00	WIRE,10 GA,RED

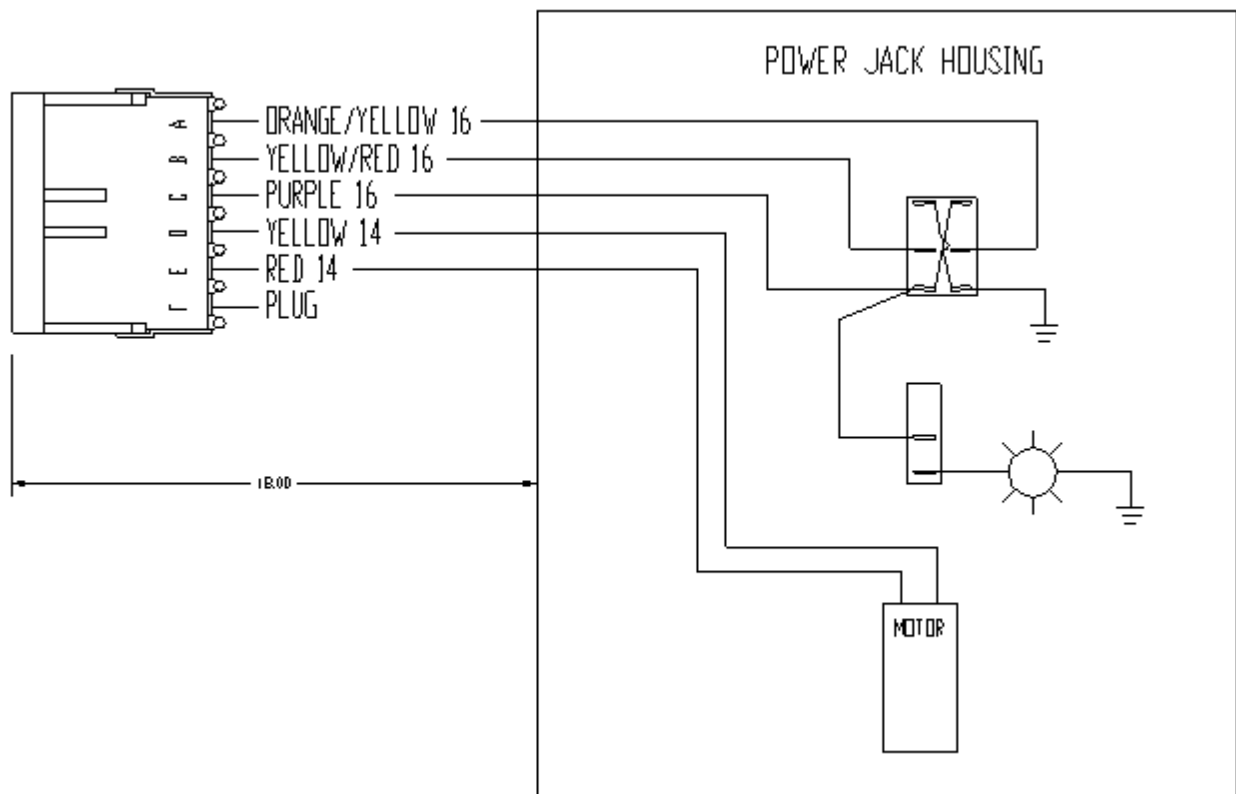
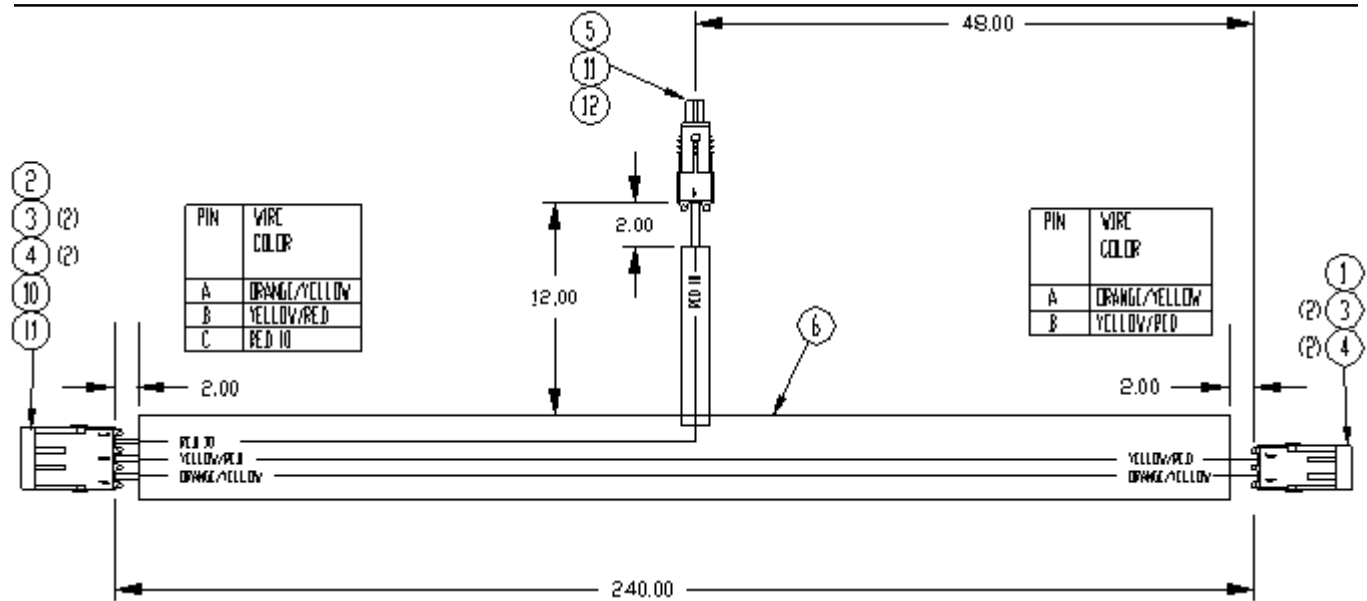


REF: 28598, 28623

ITEM	PART NUMBER	QTY	DESCRIPTION
<b>28598</b>			<b>HARNESSELECTRIC JACK</b>
1	35138	1.00	CONNECTOR,SEALED,SHROUD,2-PIN
2	36350	1.00	CONNECTOR,SEALED,SHROUD,3-PIN
3	36164	4.00	TERM,SEALED CONN,16-14 GA,MALE
4	36166	4.00	SEAL,CABLE,18-16 GA
5	37090	1.00	CONNECTOR,SEALED,TOWER,1-PIN
6	71864	21.00	LOOM,SPLIT,CONVOLUTED,.375
7	71861-2	17.00	WIRE,10 GA,RED
8	33271-21	20.00	WIRE,16 GA,ORANGE/YEL STRIPE
9	33271-14	20.00	WIRE,16 GA,YELLOW/RED STRIPE
10	38667	1.00	TERM,SEALED CONN,12 GA,MALE
11	37812	2.00	SEAL,CABLE,14 GA SXL
12	38668	1.00	TERM,SEALED CONN,12 GA,FEM

<b>28623</b>			<b>JACK,POWER,REWORK</b>
1	38919	1.00	JACK,2500LB,ELECTRIC (See Detail Previous Pages)
2	36162	1.00	CONNECTOR,SEALED,SHROUD,6-PIN (See Detail Previous Pages)
3	36164	5.00	TERM,SEALED CONN,16-14 GA,MALE
4	36166	5.00	SEAL,CABLE,18-16 GA
5	36461	1.00	PLUG,CAVITY,SEALED CONN
6	33271-21	2.00	WIRE,16 GA,ORANGE/YEL STRIPE
7	33271-14	2.00	WIRE,16 GA,YELLOW/RED STRIPE
8	33271-9	2.00	WIRE,16 GA,PURPLE
9	71066	2.00	WIRE,14 GA,YELLOW
10	71065	2.00	WIRE,14 GA,RED
11	71864	2.00	LOOM,SPLIT,CONVOLUTED,.375

REF: 28598, 28623



REF:

ITEM	PART NUMBER	QTY	DESCRIPTION
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**AXLE GROUP**

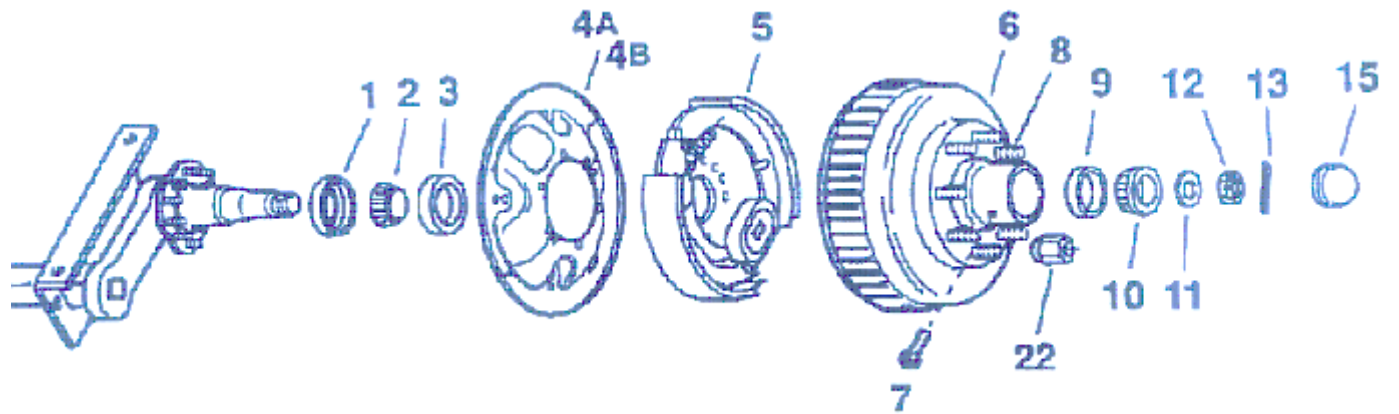
1	38775-24	1.00	SEAL,AXLE,7200LB
2	38775-25	1.00	BEARING,INNER CONE,7200LB,HUB
3	38775-26	1.00	CUP,INNER BEARING,7200LB,HUB
4A	38775-15	1.00	SHIELD, TOP DUST,7200LB,BRAKE
4B	38775-16	1.00	SHIELD,BOT. DUST,7200LB,BRAKE
5A	38775-01	1.00	BRAKE ASSY,LH,7200 LB,ELEC
5B	38775-02	1.00	BRAKE ASSY,RH,7200 LB,ELEC
6	38775-36	1.00	HUB & DRUM W/CUPS & .56 STUDS (Assembly includes items 7, 8 & 9)
7	38775-27	1.00	PLUG,OIL FILLER,7200LB,HUB
8	38775-28	8.00	STUD,WHEEL,7200LB,HUB
9	38775-29	1.00	CUP,OUTER BEARING,7200LB,HUB
10	38775-30	1.00	BEARING,OUTER CONE,7200LB,HUB
11	38775-31	1.00	WASHER,SPINDLE,7200LB,HUB
12	38775-32	1.00	NUT,SPINDLE,7200LB,HUB
13	38775-33	1.00	PIN,SPINDLE COTTER,7200LB,HUB
15	38775-34	1.00	CAP,GREASE,7200LB,HUB
22	38775-35	8.00	NUT,WHEEL,.56-18,60 DEG CONE

**BRAKE GROUP**

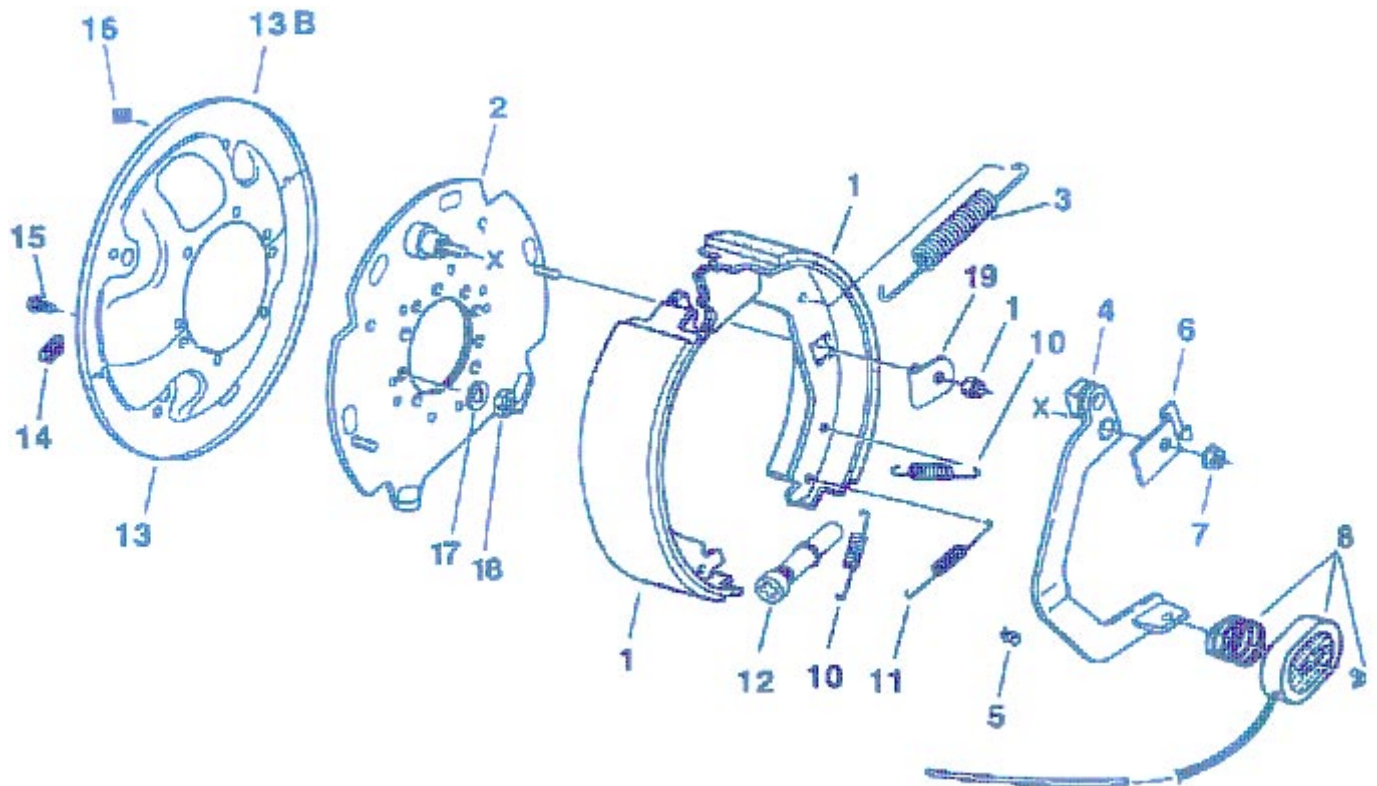
1	38775-03	1.00	SHOE & LINING,BRAKE,7200 LB,EL
2	38775-04	1.00	PLATE,BACKING,7200LB,ELE BRAKE
3	38775-05	1.00	SPRING,SHOE RETURN,BRAKE,BLACK
4A	38775-06	1.00	ARM,LH ACTUATING,7200LB,BRAKE
4B	38775-07	1.00	ARM,RH ACTUATING,7200LB,BRAKE
5	38775-08	3.00	WIRE,CLIP,7200LB,ELEC BRAKE
6	38775-09	1.00	ARM,RH RETNR LEVER,7200LB,BRKE
6	38775-10	1.00	ARM,RH RETNR LEVER,7200LB,BRKE
7	38775-11	1.00	NUT,FLANGED,7200LB,ELEC BRAKE
8	38775-23	1.00	MAGNET,BRAKE,7200LB,KIT
10	38775-12	2.00	SPRING,CENTERING,7200LB,BRAKE
11	38775-13	1.00	SPRING,ADJUSTER,7200LB,BRAKE
12	38775-14	1.00	ADJUSTER,ASSY,7200LB,ELE BRAKE
13B	38775-15	1.00	SHIELD, TOP DUST,7200LB,BRAKE
13	38775-16	1.00	SHIELD,BOT. DUST,7200LB,BRAKE
14	38775-17	1.00	PLUG,ADJUSTER SLOT,7200LB,BRAKE
15	38775-18	8.00	SCREW,DUST SHIELD MNTNG,BRAKE
16	38775-19	1.00	GROMMET,MAGNET WIRE,BRAKE
17	38775-20	9.00	WASHER,LOCK,7200LB,ELEC BRAKE
18	38775-21	9.00	NUT,HEX,7200LB,ELEC BRAKE
19	38775-22	2.00	WASHER,SHOE HOLD DOWN,BRAKE

REF:

AXLE GROUP

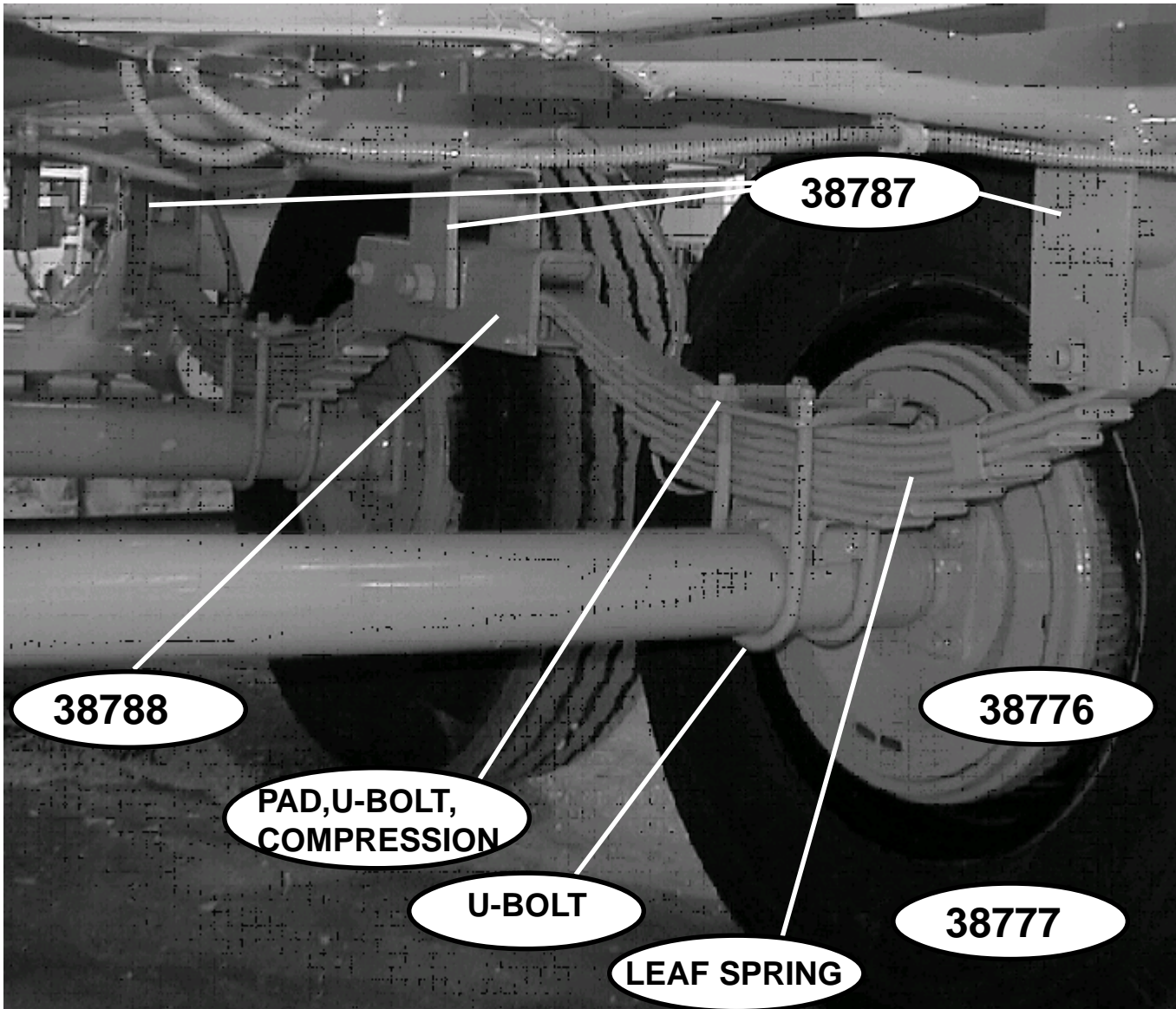


BRAKE GROUP



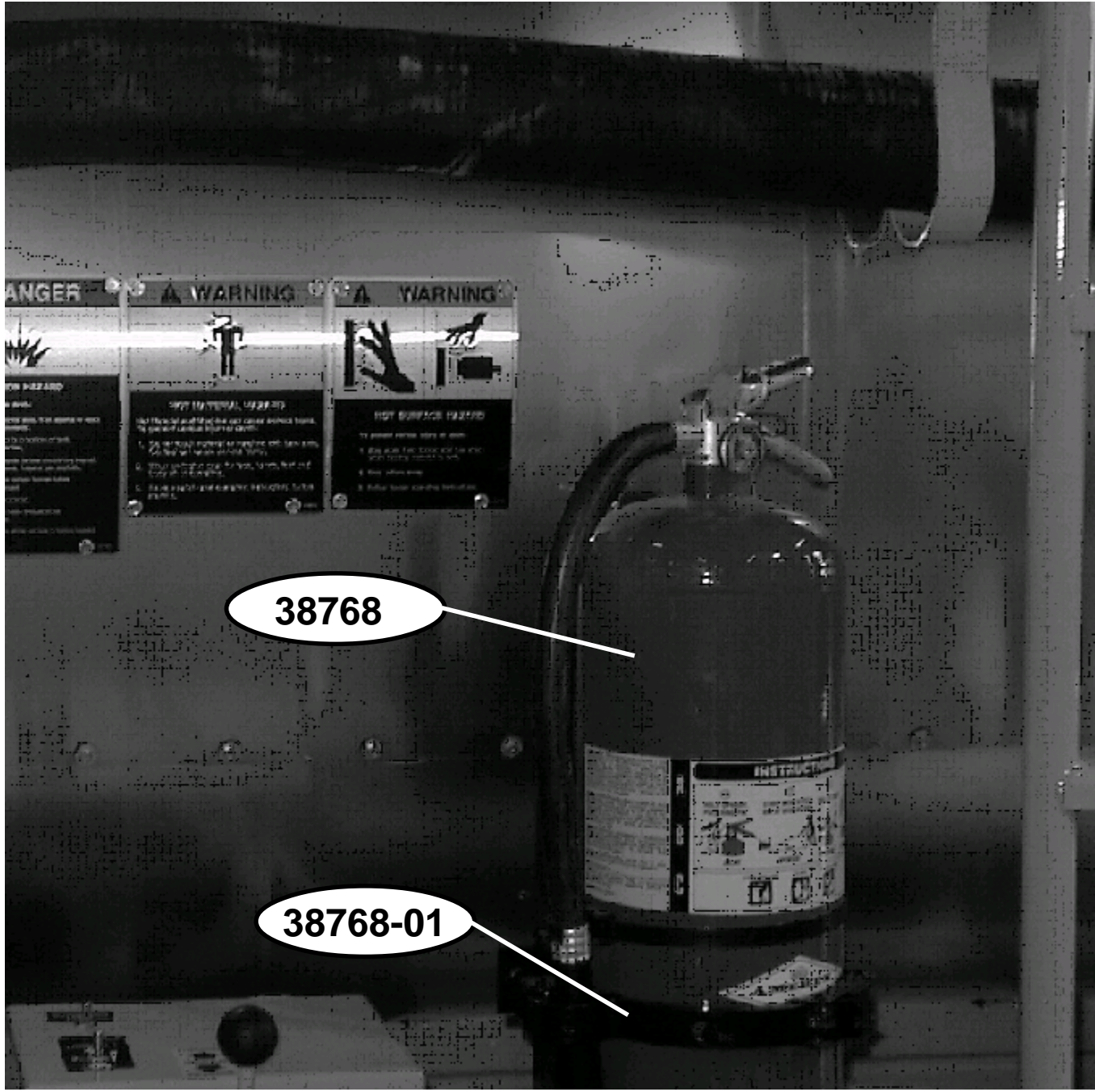
REF: SEE LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
	38775		<b>AXLE ASSY,7200 LB,ELEC BRK,OVER</b> Pad, U-Bolt Compression U-Bolt Leaf Spring
	38776		<b>WHEEL,16X6 8H,6.5 BC,3600 LB</b>
	38777		<b>TIRE,RADIAL,LT235/85R16</b>
	38787		<b>SLIPPER HANGER KIT,TANDEM</b>
	38788		<b>SLIPPER ATCH PARTS KIT,TANDEM</b>



REF: SEE LIST

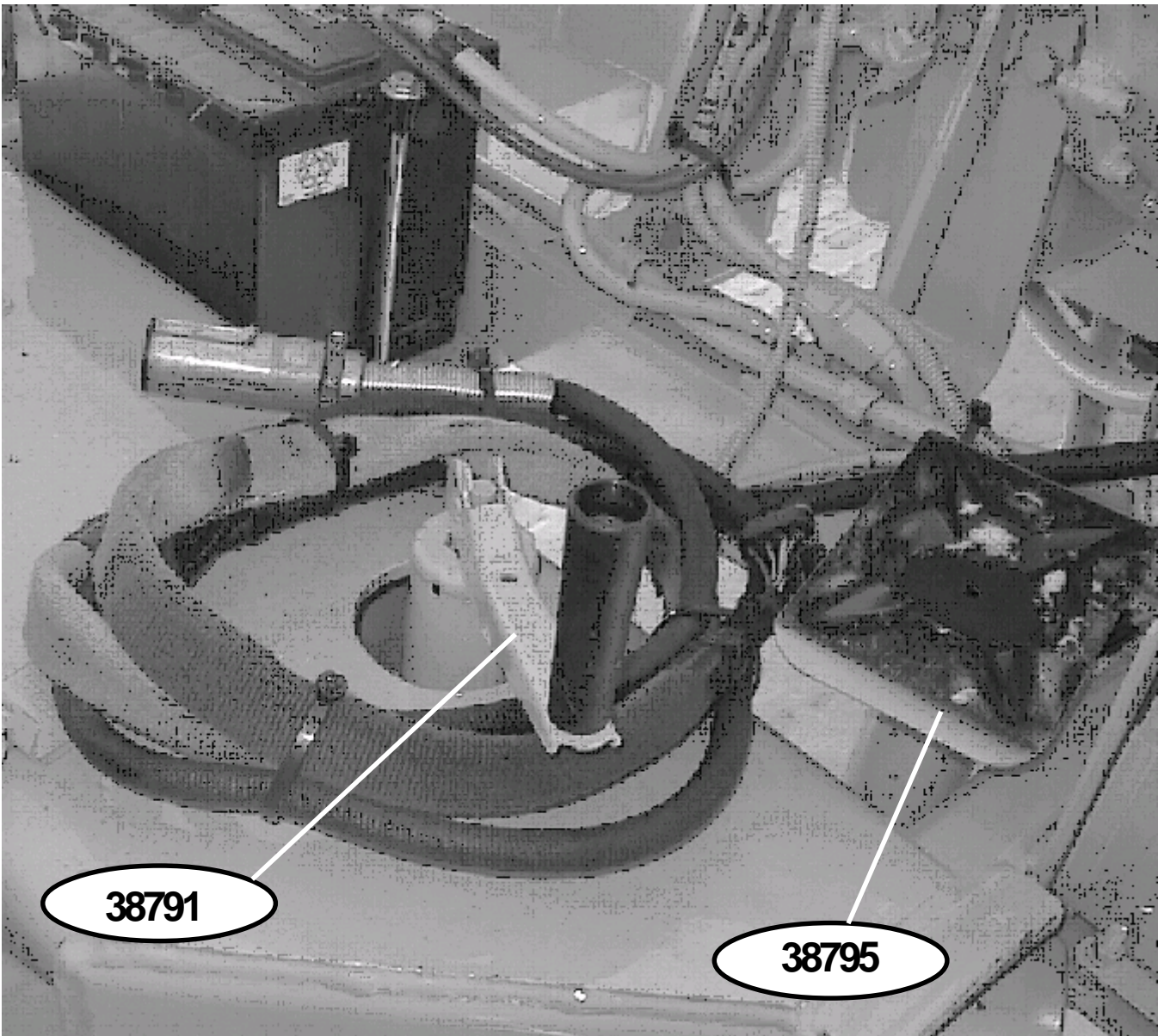
ITEM	PART NUMBER	QTY	DESCRIPTION
	38768		FIRE EXTINGUISHER,20 LB,ABC
	38768-01		MOUNT,FIRE EXTINGUISHER



ROSCO RMT

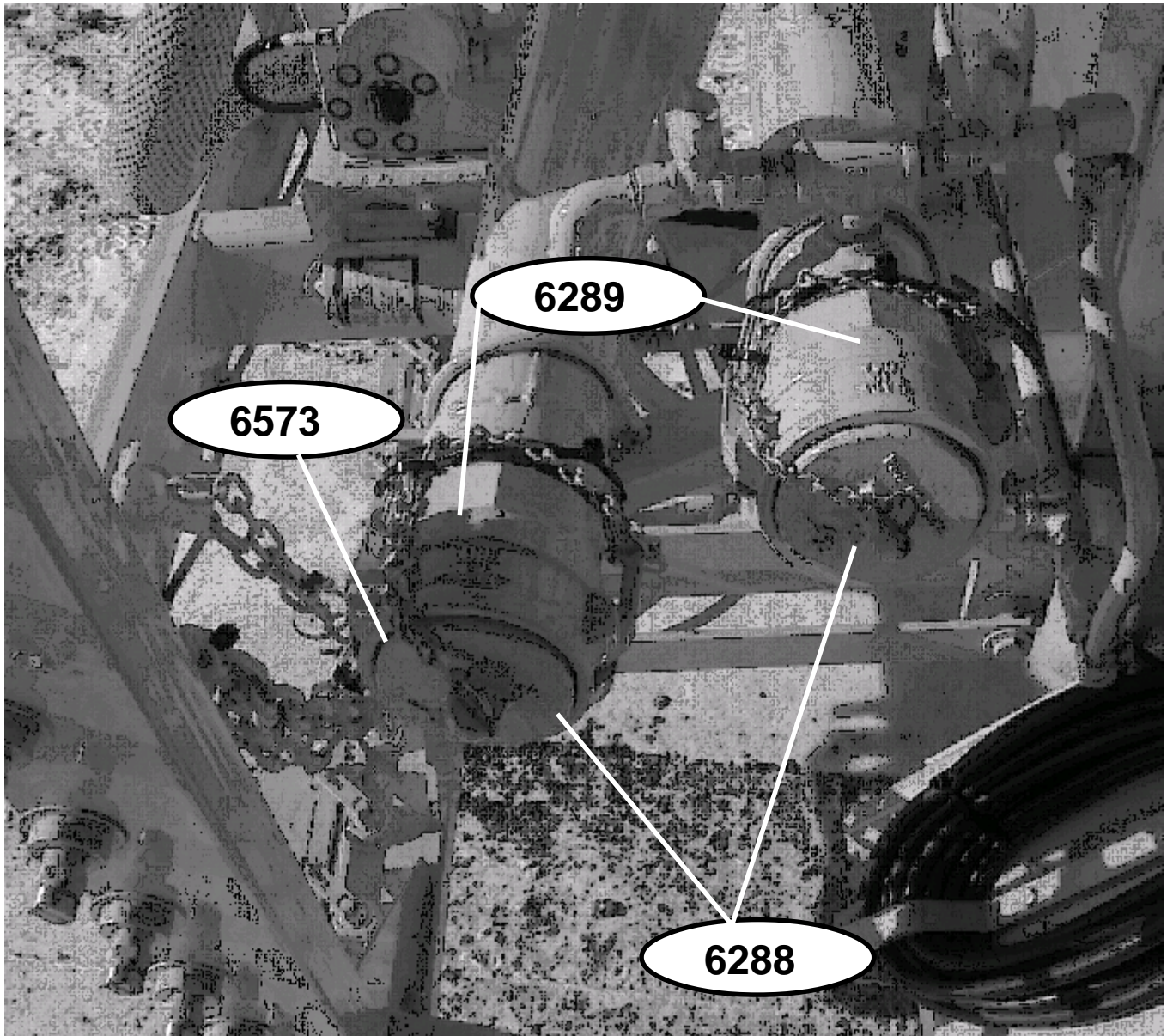
REF: SEE LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
	38791		JACK SCREW,5000 LBS
	38795		FOOT,JACK STAND



REF: SEE LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
6288			FITT,QD 3.00M-3.00FP BRASS
6289			FITT,QD 3.00F-3.00FP BRASS
6573			GSKT,3.00 COUPLING,HOT OIL,BUNA

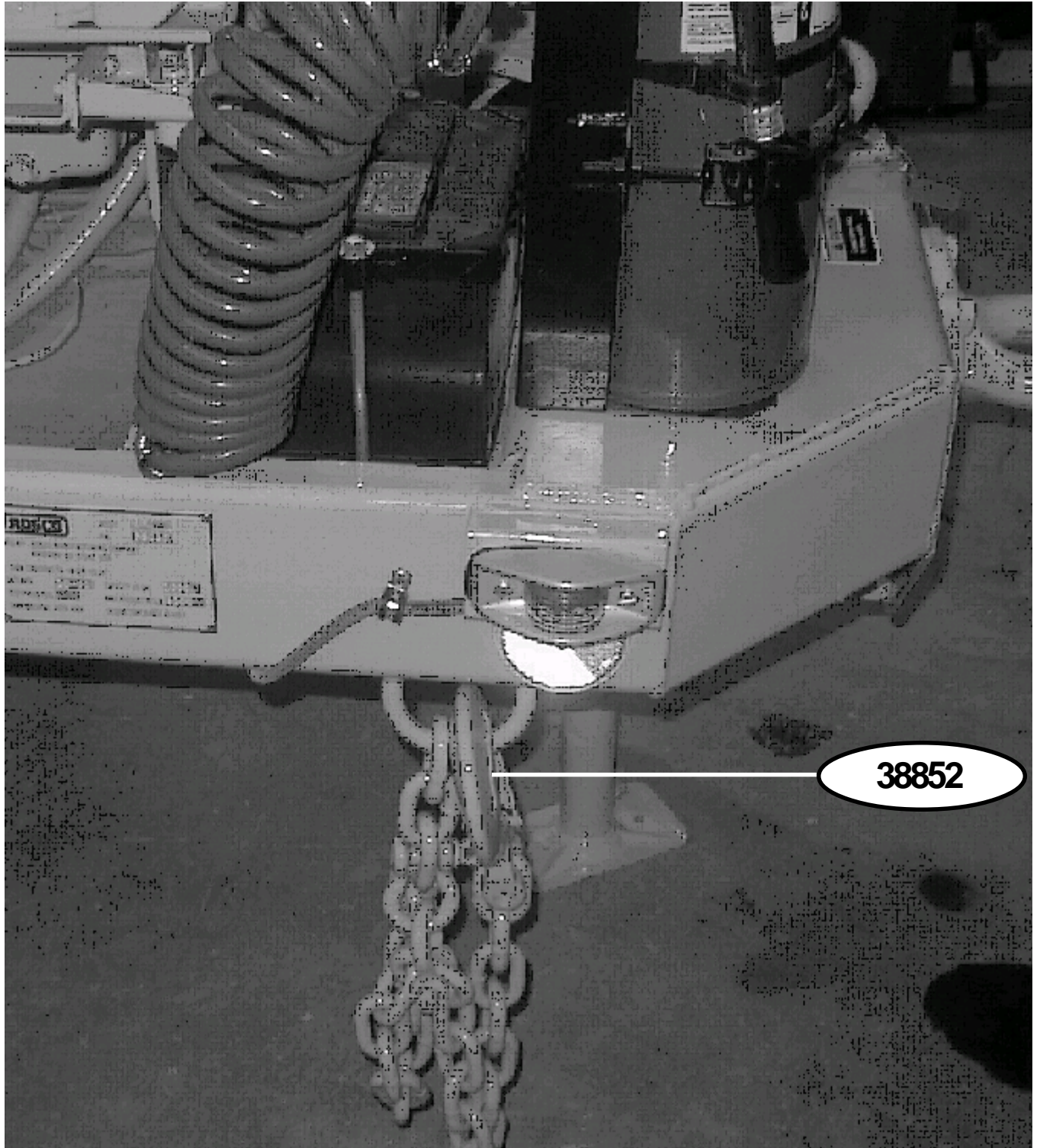


ROSCO RMT

REF:

ITEM	PART NUMBER	QTY	DESCRIPTION
	28613		PLATE,SPARE TIRE MOUNT
	32918		NOZZLE #1
	33384		GREASE,TUBE WITH DECAL,10/CASE
	34249		GREASE GUN
	36299		NOZZLE,VEE JET 1.5
	36941		GUIDE,SLIDE RULE APPLICATION
	37379		PIN,QUICK RELEASE,.25X1.3 GRIP
	38077		REFLECTIVE TAPE,1.50,RED/WHITE
	38846		VIDEO,TRAINING,RMT
	38847		MANUAL,OPERATION RMT
	38848		MANUAL,ASSOC'D,RMT,GAS & LPG ENGINES
	38958		MANUAL,ASSOC'D,RMT,DIESEL ENGINES
	38852		HOOK,SLING W/LATCH,1/2 IN,GR80 (See Illustration Following Page)
	72322		PINTLE EYE,4 BOLT,60000 LB GVW
	81114		CSHH,.750-10X2.50,GR8
	8119-2		COLLAR,SET SCREW,11X.516X1 THK
	8695		WRENCH,NOZZLE ALIGNMENT,EK BAR

REF:



38852

# ALPHABETICAL INDEX

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# ALPHABETICAL INDEX

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# ALPHABETICAL INDEX

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